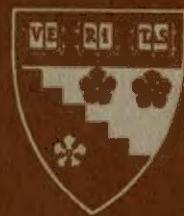


# HARVARD EDUCATIONAL REVIEW



*"Knowing and Learning"*

MARCUS BROWN

*The Act of Discovery*

JEROME S. BRUNER

*Practice in Teaching*

JUDSON T. SHAPLIN

VOLUME THIRTY-ONE

WINTER

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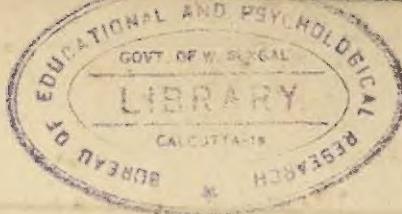
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# Harvard Educational Review

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THE EDITORS

# “Knowing and Learning”<sup>1</sup>

In this article, Marcus Brown undertakes to analyze the relation of ‘knowing’ to ‘learning,’ in order to point to the need for an expanded mode of evaluating certain educational performances. He is interested in the significance of epistemological analysis for the qualitative improvement of educative experience.

Mr. Brown received an A.B. from The College of William and Mary and an A.M. from New York University, both in philosophy. He currently is completing a doctoral dissertation at Teachers College, Columbia University, holds a position with System Development Corporation as Human Factors Scientist, and serves as Secretary of the Middle Atlantic States Philosophy of Education Society. His publications include several papers on John Dewey.

MARCUS BROWN  
System Development Corporation

“As there do exist the practice and the profession of teaching, there could exist a branch of philosophical theory concerned with the concepts of learning, teaching and examining. This might be called ‘the philosophy of learning’, ‘the methodology of education’ or, more grandly, ‘the Grammar of Pedagogy’. This would be the theory of knowledge in the sense of being the theory of getting to know. This study would be concerned with the terms in which certain episodes in the lives of individuals are described and prescribed for by teachers and examiners.”

*The Concept of Mind*  
GILBERT RYLE

IT IS THE COMMON EXPERIENCE of those who teach that, in addition to the learning of propositional information, those whom they teach are engaged in the learning of skills, the learning of attitudes (about the course, the instructor and the subject-matter, etc.) and the learning of values. There are,

<sup>1</sup> “Knowing and Learning” (in its original form) was presented to the Teachers College Philosophy Club (Columbia University) on Friday, March 13, 1959, under the title “Some Pedagogical Superstitions Concerning the Use of ‘Know’—or—Is Knowing That a Student Knows What He Learns Like Knowing That a Black Cat is Black?”

thus, a variety of "types" of learnings that take place in most formal learning situations.<sup>2</sup>

Such "types" of learnings may occur on one or more of several "levels" of accomplishment.<sup>3</sup> For instance, I may learn *without an awareness* that I have learned (so obviously, *without knowing that I have learned*). Also, I may believe that I have learned (*that something is the case or how to do something*—irrespective of whether or not what I believe to be the case is so, etc.) *without being sure* that I have learned (again, *without knowing that I have learned*).<sup>4</sup>

While extensive attention has been paid to certain types of learnings, very little attention has been paid, in education or in psychology, to the question of

<sup>2</sup> By 'common experience of those who teach,' I do not mean to suggest that all who teach have this experience. The having of the experience requires discrimination among events that are (potentially) present within a learning situation. In this sense, it might be suggested that teachers pay close attention to their common experience.

'Types,' as it will be used throughout this paper, refers to the broad categories of things that get learned; of which I take propositional information, skills, attitudes and values to be the primary instances.

'Levels,' as it will be used throughout this paper, refers to the broad categories involvement (including lack of involvement) on the part of the learner (in what has been learned); of which I take knowing, believing, awareness with non-acceptance and non-awareness to be primary instances. Later, I will use 'Kinds' to refer to the combination of levels and types of learnings. On this view, the unconscious learning of a skill would be one *kind* of learning. Skill learning would not be a *kind* of learning nor would unconscious learning be a *kind* of learning. 'Kind' is often used so as to perpetuate category mistakes.

"I wish to suggest that our familiar theoretical disputes about learning may *perhaps* (I emphasize 'perhaps') be resolved, if we can agree that there are really a number of different kinds of learning. For it then may turn out that the theory and laws appropriate to one kind may well be different from those appropriate to other kinds. Each of the theories of learning now current may, in short, still have validity for some one or more varieties of learning, if not for all . . . . But to get down to business; I am going to hold that the connections or relations that get learned can be separated into at least six types. These I shall name as: 1. Cathexes 2. Equivalence Beliefs 3. Field Expectancies 4. Field-Cognition Modes 5. Drive Discriminations 6. "Motor Patterns." Tolman, Edward C. "There is More Than One Kind of Learning." *Psychological Review*, Vol. 56, No. 3, May, 1949, p. 144. Tolman then pointed out how little he had to say in psychologically significant terms with respect to these concepts.

\* There are two main uses of 'know-that' in this general context. One of these uses permits me to say "I know-that I have learned 'X'" irrespective of whether or not I know-that what I have learned is so (is the case and/or has been learned correctly; as with, say, propositional learning). The other use of 'know-that' refers, specifically, to (literally) knowing-that what I know I have learned (in the above use) is known by me to have been learned correctly. Again, however, there are also two main uses in this general context of 'learned correctly'. In the first of these uses, I learn correctly when I learn what someone else *intends* for me to learn (and learn it substantially in the way in which it was desired that I should learn it). In the second use of 'learned correctly', I learn correctly when I learn to accept, believe or know to be the case that which is the case (irrespective of whether or not someone else intended that I should learn it in this way). In the present paper, it is the second use in each of the above distinctions that is of primary importance and it is also of prime importance for the proper following and understanding of the analysis and use of know here that this fact not be overlooked as the reader proceeds. The logic of the main use of 'know what' (as in 'know-what I have learned') appears to me to be virtually the same as that of 'know-that', with the apparent exception that there is a use of 'know what' (as in 'without knowing what I have learned') that may be utilized in the claim that I never (really) know (all of) what I have learned (even though I may know-that I have learned 'X'). 'Know what' appears to be a 'sub-category' of 'know-that' (as does 'know whether'), at least in didactic discourse. In 'I know-that what I have learned is so,' we have 'what I have learned' functioning in lieu of 'X' (where, of course, 'X' stands for what I have learned or for a reference to something thought to be learned or learnable).

the proper analysis of certain levels of accomplishments at which particular types of learnings may occur. Indeed, there is a general lack of concern, in education and in psychology, with the provision of systematic discourse for consistent description of what is *believed known* by those who learn.<sup>5</sup>

Perhaps the most significant blurring of concepts that takes place in educational discourse is occasioned by the use of the term 'knowing' as it relates to the use of 'learning.' Parents, students and teachers appear to employ these terms interchangeably on most occasions. Yet, as will be clear from the analysis to follow, to question, to study, or to test for *learning* is not necessarily to be concerned with *knowing*. Indeed, the prospect that *what Johnny learns he may not know* hardly occurs to any of us and will seem strange to some until analyzed.<sup>6</sup>

Concern for the proper analysis of 'knowing' and its relationship to 'learning' may offer the opportunity for substantially increased direction to those who are involved in the educative process. If only because we take *knowledge* to be important in education, it would seem that we would wish *to be clear about what being clear about 'knowing' might mean (do)* for educational behavior and educational evaluation.<sup>7</sup>

<sup>5</sup> By "proper analysis of certain levels of accomplishment," I refer to linguistic analysis *per se*, of terms used to express levels of accomplishment. Such analysis, properly handled, need not be either capricious or subjective. "The psychologist should equally be careful to refrain from the use of concepts derived from his 'commonsense' thinking about his own activities, for the vernacular is deeply contaminated with older, usually animistic, systems and theories of the causation of behavior. . . . Formulations involving mental states, whether termed ideas, beliefs, or expectancies, or derived from colloquial verbal behavior with respect to 'minds' cannot be readily freed, however redefined, from an element of capriciousness and subjectivity." Verplanck, William S. "Burrhus F. Skinner." In *Modern Learning Theory: A Critical Analysis of Five Examples*, by William K. Estes, et al. New York: Appleton-Century-Crofts, 1954, p. 270.

<sup>6</sup> I do not claim that all learning theorists fail to realize that "what Johnny learns he may not know." I do claim (1) that the proper analysis of the (so to speak) *knowing-learning relationship* has not been forthcoming and, hence, has not been utilized in learning theory, and (2) that the significance of the proposition "What Johnny learns he may not know" (as, indeed, the possibility of asserting the proposition itself) has been virtually ignored in educational practice. It is to the latter claim that the analysis herein is primarily directed. I am, thus, mainly interested here in certain features of the language of pedagogy and not in the language of psychology.

<sup>7</sup> One alternative to such a concern with 'knowing' is to continue to rely on certain inaccurate notions that we customarily accept as constituting the relation between knowing and learning; such as some variety of "To learn it is to know it" or "To understand it is to know it" (that is, "Unless he knows it, he can't be said to understand it"), etc. It is no wonder that the jump is also made from 'learning' to 'understanding.' Yet, the view that one has not learned unless one understands does not do justice to the facts of linguistic usage (colloquial and technical usage aside). Indeed, although the logic of 'understanding' as it relates to 'knowing' will not be considered here, the reader should come to see that to assert the presence of understanding and the absence of knowing, at the same time, with reference to the same 'item' of learning, is not necessarily to assert a self-contradictory claim.

What I mean by 'know,' 'knowing' and 'known' will, I assume, become sufficiently clear later on. However, I might observe that 'knowledge,' in the sense in which it will be used here, should not be equated with what is often referred to as 'body of knowledge.' 'Body of knowledge' may simply mean 'body of information' or 'body of learning,' etc. Further, 'knowledge,' in one of its ordinary uses, refers to 'facts' or some systematic collection of data. These uses of 'knowledge' have no connection with the use of 'knowledge as a capacity to perform in a certain way.'

There are specifiable conditions for knowing which show that knowing is but one form (a level) of learning. *Knowing* is not even a necessary condition of *effective learning*. Effective learning is dependent on the accomplishment, the appropriateness, and the organization of learning goals; and not (*a priori*) on concepts of transfer of knowledge.<sup>8</sup>

There are several possible justifications for the expression "What Johnny has learned he may not know" (and for its stronger counterpart "Johnny does not know what he has learned"). (1) It might mean that he does not remember or is not able to demonstrate, etc., what he has learned, and was once able to so remember or demonstrate it. (Let us call this Meaning 1 or M1.) (2) It might mean that what he has learned is not something that can be called 'knowable' (for instance, in the case where he has learned something, say, an attitude, or a value, that cannot appropriately be termed 'true' or 'false,' etc.) and hence, while he can be sure he learned it, and might even appropriately say *he knows he learned it* (since he can recall or demonstrate it, etc.), he has not the right to be sure he *knows* it (the attitude or value, etc.) to be true. (Let us call this Meaning 2 or M2.)<sup>9</sup> (3) It might mean that what he has learned is in principle properly termed as knowable but that (for reasons to be discussed later) Johnny only *believes* that what he has learned to be the case is so, and cannot, or does not, contend that he *knows* what he has learned (or been told, etc.) to be so is so. (Let us call this Meaning 3 or M3.) Finally, (4) it might mean that Johnny has learned something of which he was never aware and is not now aware. (Let us call this Meaning 4 or M4.) The case of someone who learned something not knowable and who alleged that it was known by him would be an instance (or special case) of M2. The case of someone who learned something knowable and who alleged that it was known by him when it was not would be an instance (or special

<sup>8</sup> It does not follow, incidentally, that when transfer involves know-how the possession of knowledge (even in the sense employed here) necessarily involves the use of (being able to use) what one has come to know. This claim violates certain loose 'theoretical' discourse in education. It is consistent with what will be argued here with respect to what it means to know, etc., and, on my view, requires some adjustment of 'technical' communication in education if we desire to talk in a strict way.

<sup>9</sup> 'Knowable' refers to whatever might appropriately be asserted, in principle, to be known. I can learn some things about which 'knowable' cannot be predicated (even though I can at the same time know what it is that I have learned; that is, know-that I have *learned* a particular thing). To learn that Leprechauns exist would be to learn something that is not knowable (as the existence of Leprechauns does not fall in the class of situations about which we might, in principle, presently say, in a meaningful way, "I know-that it is the case"). However, to assert that the existence of Leprechauns is not knowable is not to assert that Leprechauns do not exist or even that belief in Leprechauns is in any way objectionable. In this regard, many school statements that are taught to be true (and as known) turn out on examination to be METAPHYSICAL; and are thus, in principle, unknowable. Historical propositions, among others, often have this character. Further, I can learn something of which it cannot be said either that it is or is not so, as a matter of fact or as a matter of (in) principle (M2 here does not include cases involving the learning of something that is *not so*. Such cases could fall under M1, M3 or M4.).

case) of M1 or of M3. In the case of M1, I shall adopt the arbitrary, but not unreasonable, rule that what has been learned in the past is not known if it is not generally capable of being remembered or demonstrated. Of course, the mere ability generally to recall or to demonstrate what has been learned is not a sufficient condition of one's being entitled to say that Johnny does know what he has learned. M1, M2, M3, and M4 all admit that certain learning took place. M1 denies that it is now capable of illustration by the learner. M2 affirms, in effect, that it was not of a factual or *a priori* sort. M3 affirms, in effect, that it was of a factual or *a priori* sort, but says that the learner is not sure, or does not have the right to be sure, either that what he learned is so or that he actually did learn what was learned. M4 denies that the learner ever realized what he had learned.<sup>10</sup>

So you can have the presence of learning and the absence of knowing at the same time: (1) when what has been learned was known at one time but is generally incapable of being recalled or demonstrated; (2) when what has been learned is unknowable; (3) when what has been learned is knowable but while it is alleged by the learner to have been learned it is not, or cannot be, alleged by him to be known; or (4) when the learner has been unaware that what has been learned was learned. Hence, it seems to me likely to be both fruitless and systematically ambiguous to attempt to restrict technical educational discourse so that the proper use of 'learning' will be when knowing is present or has taken place—as in expressions like 'real learning.' We learn attitudes and values and these are not unreal learnings, etc., but types of learnings. But to realize this is not to settle the problem of the relation between 'knowing' and 'learning.' It is but to raise it.

Now, having looked at the proposition "Johnny does *not* know what he has learned," let us look at the proposition "Johnny *does* know what he has learned" and begin to ask what it means to affirm that someone does *know* what he has learned. I will call the proposition "Johnny does know what he has learned" by the name 'P.' Given a case where 'P' is true, either 'P' is true by definition (which is not to say that it is a definition) or because it accords with some set of facts.

If 'P' is true by definition, it is true because, assuming that something was learned, to 'know,' whatever it is taken to mean, is taken to be at least a necessary condition of 'learned.' Hence, it contains no significant information

<sup>10</sup> I see no need to debate any questions concerning unconscious learning, etc., in the present paper. However, it may be assumed that there are levels of lack of awareness in learning. Further, "All learning, it seems, is 'unconscious.' As noted elsewhere . . . there is never any sensation of learning as such." Mowrer, O. Hobart. *Learning Theory and the Symbolic Process*. New York: John Wiley and Sons, Inc., 1960, p. 288. See also the discussion of Dulany's (1960) paper on pp. 290-291 (footnotes), as well as other references to "unconscious learning" and "unconscious motivation."

at all,<sup>11</sup> and to thus assert 'P' will be tantamount to asserting what I will call 'P-def.' that "Under no conditions will there be an instance, when we refer to what Johnny has learned, when we do not mean that 'know' will be appropriate for at least partially describing what was learned." Of course, 'P' is then devoid of the possibility of containing a significant description, irrespective of the meaning of 'know.' For 'P,' being true by definition, would be unfalsifiable.

If 'P' is true because of its accord with a set of facts, it is true because its contradictory is false but might have been true had a certain different set of facts been the case. Hence, it would be empirically true ('P-emp.); thus asserting something about the world and not merely about itself (that is, not solely about the terms contained in 'P'). 'P' is empirical (1) whenever it asserts that something was learned; and/or (2) whenever it proports to be saying something significant about what Johnny has learned.

Hence, where it is alleged either that the truth of 'P' is derivable from the facts of learning or that, in a given situation, 'P' is in some way descriptive of Johnny's behavior, this is to assert 'P-emp.' and not 'P-def.' Consequently, we can see that 'P-def.' can have no experiential significance and that 'P' becomes psychologically interesting only when the conditions of its falsity are possible, statable, stated and sometimes present.

Clearly, it is possible to *learn* something that is *not* so. What I was taught and memorized and utilized, etc., has sometimes been wrongly taught to me. So, at times, what I learned was not so. We testify to this in our common speech when we say "You learned something that just isn't so" or "Who did you learn that from?"

Also, I can learn something without being *sure* that I have learned it, as when one says "I *think* I learned it" or "Are you *sure* you learned-how?" I learned-how to play cribbage but at times I couldn't remember what playing cribbage was like, and was at times not sure that I did learn cribbage because I couldn't remember whether I did in fact ever play a full game or not—but I did. Johnny may not be sure (he may not even be aware) that he learned good manners—but his folks may be sure. Most learning (and including perhaps the most significant learning) appears, on close examination, to be of the sort where I am *not* even sure that I have learned what I have learned, much less that I may be said to *know* what I have learned.

The matters just discussed are crucial for the proper distinction between

<sup>11</sup> One condition of significant information is that it runs the risk of being wrong. With respect to 'P,' I shall leave it to be a moot question as to whether or not it may properly be termed an ordinary expression. I take R. M. Hare's recent statement to mean that this question need not be settled here: "One can experiment with language. If one is successful in giving sense to a newly coined form of expression, that, too, proves something"—"A School for Philosophers," *Ratio*, Vol. II, No. 2, February, 1960 (pp. 107-120), p. 119.

knowing and learning. To say "I *know* it is raining outside but it isn't" is a most peculiar way to talk—indeed, it is an unintelligible way to talk. To say "I *know*-that it is raining outside but I am not sure that it is" is at least an extremely awkward way of talking. Yet, I can properly say "I *learned*-that Caesar died in 43 B.C. but what I learned is not so" and "I *learned*-that Caesar died in 44 B.C. but I am not sure that what I learned is so." Again, (assuming that Caesar died in 44 B.C.) to say "I *learned* in school today that Caesar was killed in 46 B.C." could be an empirically true assertion, whereas to say "I *know*-that (know from school that) Caesar was killed in 46 B.C." would be (empirically) false. If Caesar did not get himself murdered in 46 B.C. (or, for that matter, in 44 B.C.), then nobody *knows*-that he did; even if everyone *learned*-that this is the date to be used for Caesar's death, I can't learn 'X' when 'X' is not so and I can learn 'X' without being sure that I did. But the same cannot be said for 'knowing.' I cannot know what is not so and I cannot know without being (feeling) sure that what I claim to know is so. Since this will not necessarily be obvious to every reader, the next section of the paper will formalize the conditions of knowing.

In the first chapter of *The Problem of Knowledge*, A. J. Ayer offers three conditions for knowing-*that* something is the case.<sup>12</sup> I would like to explain and defend these conditions, and then to later transpose them into conditions for knowing-*how* to do something.

There are times when we claim to know something that is not so. It is sometimes appropriate to claim to know-*that* something is the case when in fact it is not the case or later turns out not to have been the case. Yet, though it be appropriate at times to say that I know-*that* 'X' is the case, the appropriateness does not in itself establish the fact of whether or not I did (or do) indeed know 'X' to be the case. In order to say that I know 'X' to be the case, my claim that 'X' is the case must be true. If Caesar did not die in 44 B.C., then nobody ever knew that he did, because we cannot be said to know what is not the case. If I claim to know-*that* 'X' is the case when it is not, or if I claim to know what later turns out not to have been the case, then I am mistaken about my claim to know. In such instances, I only believed 'X' to be the case; I did not know it to be. This, then, is the first condition for knowing-*that* something is the case. 'X' must be true.

It is never appropriate to say that I *know* something to be the case when I am not sure that it is. To say "I know-*that* Caesar died in 44 B.C., but I am not sure that he did" is, as indicated, at the least an awkward 'claim.' If I am not sure that something is the case, I cannot claim correctly that I *know*-*that* it is the case. If I am not sure that something is the case, then, again, I can only (still) believe-*that* it is; and this is so, irrespective of whether or not what I

<sup>12</sup> Ayer, A. J. *The Problem of Knowledge*. London: Macmillan and Co., Ltd., 1956.

believe to be the case is the case. On this view, doubting and knowing are incompatible with reference to the same belief (believing being a component of knowing, but not necessarily vice versa). The second condition for knowing—that something is the case, then, is that whoever makes a claim to know must be sure (feel sure) that 'X' is true. 'Sureness' here refers to a *feeling* of certainty.

Yet, just because 'X' is the case and I feel sure that it is, I am *not* thereby entitled to say that I know it to be. For in such instances, I would have to be allowed to say that I *know* lots of things of which I am sure and which just happen to be true, etc. Usually, our "I knew it!" eurekas are expressing "I told you that I had good reason to believe it." But, while having good reasons for being sure *may* give me the right to be sure, such sureness only constitutes a necessary condition for knowing. To achieve the sufficient condition for knowing—that something is the case, 'X' must be the case, I must be sure that it is, and I must have the right to be sure that it is. That right (the third of the necessary conditions for knowing—that something is the case) will depend on circumstances. My right to be sure (for purposes of a knowledge claim) that Caesar died in 44 B.C. *may* be established by *faith* in the pronouncement of a teacher or a textbook. Some may wish to interpret the matter of the right to be sure more strictly; so that the right to be sure derives from having personally verified the truth of a proposition that we claim to know to be the case, etc. Such a right will only sometimes depend on direct verification. I think, however, that the matter is not particularly crucial. What is crucial is that *some* standard of the right to be sure be adhered to; for looseness in this connection will be mediated by the other conditions. This condition is necessary, as has been shown in the first two sentences of this paragraph, and of course, the right we may point to *must* be pertinent to the claim we make. Whether it is or not will be an empirical matter and need not be settled in advance.

In his distinguished book, *The Concept of Mind*,<sup>13</sup> Gilbert Ryle has drawn a distinction between the two primary ways in which we know—knowing-*that* and knowing-*how*. These (both) he takes to be genuine forms of knowing. Traditional philosophy has been primarily concerned with the first (knowing-*that* knowledge), propositional knowledge, and has generally ignored the second (knowing-*how* knowledge), skill knowledge. 'Know-*that*', for Ryle, refers to the act of knowing—that something is the case (as in knowing—that Caesar crossed the Rubicon). 'Know-*how*' refers to knowing-*how* to do something (as in knowing-*how* to program a computer). For Ryle, these are two distinct forms of knowing; that is to say, knowing-*that* is one way of knowing something, and knowing-*how* is another way of knowing something. Having noticed, in effect, that to know-*how* to teach something need not imply an ability to translate such a skill into statements that would necessarily allow anyone else to perform the

<sup>13</sup> Ryle, Gilbert. *The Concept of Mind*. London: Hutcheson's University Library, 1949.

skill in the same way; and having observed that to know-that a game, to be played well, is played a certain way does not imply that a person with such knowledge must be able to play it; Ryle draws a distinction between know-that and know-how, and takes them to be separate (irreflexive) categories. A coach can achieve some enforcement (or reinforcement) of knowing-how by seeing to it that his pupils get some know-that background, and this will usually be done; but it will not necessarily be warranted to say that if a pupil doesn't know-how after having been instructed, that it is because he didn't follow instructions. So, in effect, Ryle's distinction breaks down that distinction that is very often made between knowledge and skills as separate categories, and, instead, establishes the achievement of skills at a certain level (my language) as a (genuine) category of *knowing*.

In his recent book,<sup>14</sup> John Hartland-Swann argues in a very interesting way that Ryle's hard-core distinction between know-that and know-how is not an adequate account of their relationship. For Ryle, it appears to be the case that know-how is not reducible to know-that nor vice versa. Hartland-Swann finds it possible to make a reduction, at least in one direction, and thereby show all instances of genuine knowing to be instances of knowing-how to do something. Through an analysis of the ordinary use of the English language, Hartland-Swann shows that knowing-that is "... merely a special case (or sub-category) of knowing-how."<sup>15</sup> His argument is rather technical and need not be reproduced here. The conclusion is that since knowing-that is dispositional (in the form of an assurance of a capacity to state something correctly in accordance with some decision), to appropriately say "I know-that" is to say "I am able to state (reply) correctly that" and (what is, on Hartland-Swann's view, basically the same thing) "I know-how to state (reply) correctly that . . ."<sup>16</sup> Further, to know-that 'X' is the case is to know-how to answer a question about 'X'.

With reference to Ryle's parallelism between the two concepts, Hartland-Swann goes on to maintain that

If this criticism is valid, it is worth noting that it applies equally to another of Ryle's examples of the 'how/that' dichotomy, namely to 'learning'.<sup>17</sup>

<sup>14</sup> Hartland-Swann, John. *An Analysis of Knowing*. London: George Allen and Unwin, 1958.

<sup>15</sup> *Ibid.*, p. 56.

<sup>16</sup> *Ibid.*, pp. 61-62. 'I know' has to reflect a decision from which I give my authority that I am entitled to say more than that I believe. Teachers ask: "Do you know the answer?" To say "Yes, I do" is usually to say "I know what answer would be accepted by you" (as distinguished from "I know the answer as to whether or not 'X' is the case," etc., depending on the question-type that is being employed). In education, the problem of knowing (or knowledge) is a problem of understanding and utilizing the capacity to learn in a certain way. I can often consistently say of certain aspects of schooling "He learned-how to answer the question, but doesn't know-that 'X' is the answer."

<sup>17</sup> *Ibid.*, pp. 58-59.

While I agree that Hartland-Swann's criticism of the 'how/that' dichotomy with respect to 'knowing' provides a basis for analyzing *many* 'how/that' cases involving 'learning' and that it *can* apply to the case that he then examines ("I have learned-*that* the earth is round") is dispositionally analyzed as "I have learned-*how* to reply correctly to the question 'What shape is the earth?'"), I do not agree that the breakdown of the 'how/that' dichotomy extends to *all* cases of 'learning-*that*.' For what works for 'know' in this respect does not necessarily work for 'learn'; and to see this, one of the things that must be kept in mind is the distinction between 'believe' and 'know.'

I am arguing, in part, that we sometimes learn things that we do not know (that is, where we are not necessarily entitled to say about the object of our learning that it is known; that it meets the conditions of what it means to know). To illustrate this, I point to the simple fact that we sometimes learn on the level of *belief* and not on the level of *knowledge*.<sup>18</sup> To know-*that* it is raining outside, I must believe-*that* it is; but I *can* believe-*that* it is raining outside without knowing-*that* it is. I can believe without being sure of myself (without, that is, feeling sure that my belief is true); although many beliefs involve feelings of certainty. It is the latter aspect of belief that is present in knowing.

It is not necessary for me to *know-*that** the earth is round in order to have learned-*that* the earth is round. I can, that is, *believe-*that** the earth is round without *knowing-*that** it is. Indeed, although I shall not argue the point here, I would be prepared to maintain that the proposition "I have learned-*that* the earth is round but I do not believe that it is" is not a self-contradictory assertion. Neither belief nor knowledge, on this view, are prerequisite to having learned-*that* the earth is round.<sup>19</sup>

<sup>18</sup> Strictly speaking, we don't *learn beliefs!* We *learn to believe 'X'* (and to know 'X') or, more appropriately, *come to believe 'X'* (and to know 'X'—not necessarily the same 'X') *in a learning situation* ("He came to learn"—"He came to believe"—"He came to know"). There is a sense in which it may be said that we learn-*how* to believe, as when we consider alternative logics, etc.; but, as Bertram Bandman has pointed out to me, this is more appropriately characterized as learning-*how* to justify belief (and I take 'to justify belief' as 'to justify believing'). Whatever attitudes, facts, skills or values, etc., are involved in such learning (situations), they must be negotiated on some such level of learning as those under discussion. I will continue here to use expressions like 'learn to believe' and 'learn to know' with the understanding that their primary reference is to levels of learning. I can also 'learn beliefs' in the sense of learning that such and such beliefs are held by so and so, etc., but this is a trivial sense. What I learn are attitudes, facts, skills, values, etc., and I learn (come) to believe and to know them, etc.

<sup>19</sup> In commenting on Kingsley Price's "On 'Having an Education'" (see this journal, Vol. 28, No. 4, Fall, 1958, pp. 320-337 and "Comment," pp. 337-339), Israel Scheffler points to what Price does not say. "He omits all those aspects of teaching that cannot be interpreted in terms of *knowing, belief, and understanding*. Teaching, for him, always involves knowing; the teacher must know more than the pupil." (p. 337) Scheffler recognizes that teaching is not always aimed "...at the transmission of facts or the development of skills, but rather at developing certain propensities or tendencies of conduct not describable as knowing at all, either knowing that or knowing how." His main point thus far is very important; namely, that teaching and learning can (properly) be concerned with the *shaping of conduct* and not at the same time

To have "learned-that Columbus was an Italian," unlike to "know-that he was," may be merely to have learned-that the proposition "Columbus was an Italian" is accepted as a true statement. Also, if I do not know what 'nationality,' etc., means, to have "learned-that Columbus was an Italian," would not be to have learned-how to reply correctly to the question "What nationality was Columbus?" (etc.). And since Columbus need never have been to Italy in order to have been an Italian, it certainly would not be (logically) necessary to

with *understanding*. He then goes on to argue: "Finally, if we look at Price's conclusion, 'One who has an education is one who believes what he has been taught,' it seems to me not even to leave enough room for the teaching of *skills*, let alone *propensities of conduct*. The notion of *belief* seems to me to be inapplicable to cases of skills altogether: To have just learned that something is the case may imply to believe that it is the case, but to learn how to do something is not to believe how to do it." (p. 339) (See also Gilbert Ryle's *The Concept of Mind*, p. 28: "...we never speak of a person believing or opining *how*, and though it is proper to ask for the grounds or reasons for someone's acceptance of a proposition, this question cannot be asked of someone's skill at cards or prudence in investments.") I would myself argue with Price on other grounds. I would not wish to conclude that just because 'believe how' is neither a colloquial nor an ordinary expression that, in the case of skills, believing is absent from knowing. If Scheffler is right, I should be permitted to say (correctly) "I know-how to do 'X' but I don't believe-that I do." I would wish to maintain that 'believe-that' is a component (necessary condition) of 'know-how.' Scheffler also argues: "To have learned how to swim is to know how to swim; there is no possibility of *mistake* here, and correspondingly no room for the notion of *belief*. (Further, to learn a skill can't be said generally to involve a supervisory use of any sentence, in any sense that I can understand. To learn how to swim surely doesn't involve using any sentences in swimming, either during the process of learning or after.)" I certainly agree that learning to swim does not necessarily involve the use of sentences (although I am not quite clear as to why it "surely" would not involve using them). I cannot agree, as will be clear from the general line of argument in the present paper, either that to learn-how is to know-how or that where there is no possibility of mistake (in any sense consonant with what it means to know) there is no room for belief.

In *The Language of Education* (Springfield, Illinois: Charles C. Thomas, 1960), Scheffler maintains: "To learn to be honest is to acquire a certain norm, a 'pattern of action.' Belief is not implied. The notion of belief is not even applicable. One learns to be honest but no one believes to be honest. By contrast, to learn that Columbus discovered America is (whatever else is involved) to come to believe that he did. Similarly, to learn that one ought to be honest is to come to believe that one ought to, [sic.] (whatever else is involved, [sic.]—in this case, at least acquisition of the norm)." (p. 93) Once again, I find myself unable to agree with this approach to the correct use of the concepts involved here. While I can agree that some 'learn to' cases do not imply belief (and that, perhaps, none do), I cannot agree that "The notion of belief is not even applicable" in all 'learn to' cases. On the other hand, while I can agree that 'ought learning' seems to imply 'ought believing' (although it also seems to me that there is a perfectly good sense of 'ought learning' in which 'to learn-that I ought to be honest' may involve learning what I cannot intellectually bring myself to believe), I cannot agree that "...to learn that Columbus discovered America is (whatever else is involved) to come to believe that he did" (that is, that it is *necessarily* so). In any event, the 'learn-that' factual example is just not analogous to the 'learn-that' value example. The Columbus example just might work well enough to make the point that Scheffler intends here (as a 'learn to'-'learn-that' distinction with respect to questions in moral education), but it is not satisfactory as an alleged contrast case with respect to the logical relationship of 'believing' and 'learning.' We have all (as students) experienced instances in teaching where the instructor could hardly have been less concerned with whether or not the students believed the learn-that information that was being presented. Students learn information that conflicts with their beliefs. There is also the matter of learning without awareness to account for with the belief terminology under discussion. Incidentally, since the purpose of a given test may be to test learning and not belief (believing), as one would expect in a typical situation (the notion of 'testing belief' not being in the mind of the examiner), we may expect that this would be reflected generally in (on) the educative process at hand.

be able to answer the question "What was Columbus' place of origin?" (etc.), as a corollary of having "learned-that Columbus was an Italian." To have learned-that something is the case is not necessarily to have learned-how to answer a pertinent question about what I have learned.<sup>20</sup>

There is, then, on my view, neither a correct-statement nor a pertinent-question capacity necessarily attached to propositional learning (and we do not have to exclude the capacity for answering a "What did you learn?" question). It should be noted that belief learning itself need not involve the capacity (s) under discussion (that is, the lack of such capacity (s) is not restricted to learnings 'below' the 'level' of belief). To believe, as the 'result' of having learned it, that 'X' is the case would (seem to) produce an accompanying skill learning where the belief progresses toward a feeling of sureness. In such cases, the assurance of a correct-statement disposition, as would be pertinent to cases of 'knowing-that,' is more likely to be present in the claimant sense. Yet, I can correctly make use of the term 'belief' without laying claim to anything at all or to the ability to answer any particular (much less pertinent) question about my belief. To be able to state correctly that one has learned (on the level of belief) that Jones is the leading candidate does not necessarily commit one to be able to answer any particular question about the outcome of the election or about the source of one's learning.<sup>21</sup> Hence, 'learn-that' is not automatically a sub-category of 'learn-how.'

<sup>20</sup> However, there will be cases of learning-that (that do not involve knowing-that) where such an answer *will* be a necessary condition of our willingness to admit that one has learned-that such and such is the case.

While one may argue that to be able to answer "Yes" to the question "Is the proposition 'Columbus was an Italian' true?" is to have learned-how to answer a question about the proposition, one could reply that since it need not be true in order for it to have been learned and since the 'learn-how' involved could be that of having learned-how to answer a true-false question, such learn-how is not relevant and does not constitute being able to answer a pertinent question about 'X.'

Because of the extensive number of qualifications (re distinctions) that I have thought necessary to make here, some of the points made in conjunction with them would perhaps best be characterized as the outline of argument rather than argument itself. Such an instance, I feel, is represented by this paragraph. Incidentally, the reader may notice that the point about Columbus' not having to have been to Italy in order to have been an Italian applies to knowing as well as to learning (that). However, it should also be noticed that when one knows-that Columbus was an Italian, one would have learned (as known) 'more than' (though *not* necessarily the fact) that the proposition "Columbus was an Italian" is accepted as a true statement.

<sup>21</sup> I am denying that propositional learning (even on the level of belief) *implies* either knowing-that or learning-how; hence, that it implies either a correct-statement capacity or what we may speak of as a pertinent-question capacity. I am suggesting that to be able to state correctly that one has learned 'X' (except on the level of know-that) does not *imply* a pertinent-question capacity. Yet, I am not denying that learning 'below' the level of knowing can involve such capacity. Indeed, I am prepared to argue that some non-knowing-that cases that are also non-believe-that cases of propositional learning involve learning-how—but I shall leave this 'puzzle' to the reader.

A correct-statement capacity does not of itself *imply* know-how. Know-how requires this capacity (and the accompanying, for know-how, pertinent-question capacity) but is not, for me, defined by it.

"Learning by doing," etc., mitigates *some* of the difficulties that arise when the teacher is unable to analyze the educative process and operates unaware of the distinctions here indicated or of their relevance. But "learning by doing" without conceptual analysis is no substitute for "learning by doing" with a theory (not a slogan) of knowing.

In discussing the development of subject matter in the learner, Dewey complains, in *Democracy and Education*, of the failure of learning to "enter into character and affect conduct." Noticing that the increase in bulk of organized information has influenced our notions of "the nature of knowledge itself" (that is, unconsciously), and that the "acquisition of knowledge" depends upon one's "response to what is communicated," Dewey observes that

If this identification of knowledge with propositions stating information has fastened itself upon logicians and philosophers, it is not surprising that the same ideal has already dominated instruction.<sup>22</sup>

I see Dewey as saying two things that both support and are supported by the analysis here of knowing. On the one hand, he is saying that *statements* which are but the records or repository of knowledge (as an inquiry outcome) are not properly to be taken as constituting the whole of knowledge. On the other, that the learning of information is not at all necessarily one with the 'learning' (acquisition) of knowledge. Dewey is quite definite about his use of 'know'—again quite consistent with the usage adopted here.

What is known, in a given case, is what is sure, certain, settled, disposed of; that which we think *with* rather than that which we think about.<sup>23</sup>

I see this as being in agreement with Hartland-Swann's reduction of know-that to know-how, as against Ryle's separation of them. One way of stating Dewey's primary concern with the nature of subject matter would be to say that he was opposed, in principle, to learning that required reproduction of statements, presumed to have value in and of themselves, where the "power to do" was not predicated as an outcome or not based on need and interest in application.

That we can *learn by doing* is a fact. That we must *do in order to learn* is also a fact. However, the first of these facts is true and the second is false (where by 'fact' I mean 'matter of fact'). Consequently, the notion of "learning by doing" is only interesting insofar as it is taken to be a value judgment about the problem of method, etc. Of course, there are factual problems of method.

The claim that we learn by doing is an ambiguous claim. If it is a claim that

<sup>22</sup> Dewey, John. *Democracy and Education: An Introduction to the Philosophy of Education*. New York: The Macmillan Co., 1916 , pp. 220-221.

<sup>23</sup> *Ibid.*, p. 222. Notice that we do not ordinarily speak of 'the learning of knowledge' but do speak of the learning of information, etc.

we *can* learn by doing, it is an uninteresting claim. If it is a claim that we *must* learn by doing (that we *only* learn by doing), it is a false claim. Dewey did not claim that we learn by doing (of course, he did not deny it either). What he claimed to be the case (as a matter of fact) is that knowledge is the outcome only of learning by doing.

The most direct blow at the traditional separation of doing and knowing and at the traditional prestige of purely 'intellectual' studies, however, has been given by the progress of experimental science. If this progress has demonstrated anything, it is that there is no such thing as genuine knowledge and fruitful understanding except as the off-spring of *doing*. The analysis and re-arrangement of facts which is indispensable to the growth of knowledge and power of explanation and right classification cannot be attained purely mentally—just inside the head. Men have to *do* something to the things when they wish to find out something; they have to alter conditions. This is the lesson of the laboratory method, and the lesson which all education has to learn.<sup>24</sup>

The pragmatic theory of the method of knowing is strictly a dispositional theory of conscious use of intellectual habits for purposeful modification of the environment.

Knowledge is not one thing and skills another thing. That is to say, the expression 'knowledge and skills' does not lack redundancy. Not only do some skills involve (constitute) *know-how* but if all 'know-that' knowledge is a special case of 'know-how,' then it would appear that all propositional knowledge is the result of a skill at knowledge getting. Nonetheless, the learning of skills presupposes, perhaps, information, but not necessarily knowledge.<sup>25</sup> Skills, like propositional information, are learned on differing levels. Of course, some skills, as with some propositional information, would appear capable of being learned only on certain minimum 'levels' (as a condition of their being learned). But

Knowledge . . . is always what somebody knows . . . knowledge, however (*sic*) grows by the receipt of meaningful information—that is, by the intake of messages by a knower which are capable of re-organizing his knowledge.<sup>26</sup>

<sup>24</sup> *Ibid.*, pp. 321-322. See footnote eight above.

The integration of knowledge (of knowing, etc.) seems to me not to be implied by the act of coming to know (although some knowing will necessitate such integration).

<sup>25</sup> "I thought some know-how presupposes some know-that. 'I only know how to read and translate French because I know that this particular French word means the same as that particular English word, because I know that past participles after être agree with their subject in gender and number and so on.'" Hartland-Swann, John. "The Logical Status of 'Knowing That'." *Analysis*, Vol. 16, No. 5 (New Series No. 53), April, 1956, p. 11.

<sup>26</sup> Boulding, Kenneth. "General Systems Theory—The Skeleton of Science" (pp. 11-17). *General Systems: Yearbook of the Society for the Advancement of General Systems Theory*. Edited by Ludwig von Bertalanffy and Anatole Rapaport. Vol. 1, 1956, p. 11.

Such messages are not *merely* meaningful, it should be noted, as information itself is not simply piled up or accumulated in behavior change. It is structured

"... into something essentially different from the information itself."<sup>27</sup>

*Knowledge is more than meaningful information. Belief may consist entirely of meaningful information. Skill may function in the absence of any of these or in the presence of each.*

It is important, too, that those who wish others to know things that they do not now know keep in mind that in knowing, as distinguished from other levels of learning, *man*

"... not only knows, but knows that he knows."<sup>28</sup>

We, nonetheless, often attempt to get individuals to know things, or so we say we strive to do, without (1) testing for the specific conditions of knowing or (2) making these conditions known to the learners so that they may know that they know.

With respect to the learning of skills, I may be able to do 'X' without necessarily being skilled at it. If I am skilled at doing 'X,' if I am certain that I am skilled at it (if I am certain that I know-how to do 'X' skillfully), and if I have the right to be certain (from expert, etc., verification, etc.), then I know-how to do 'X'! This position seems to me to be unavoidable; however, I hope in a future paper to be able to do more than to legislate the correct use of 'know-how.'

[When I tell someone that I 'know-how' to swim (not simply 'learned-how'), it surely must be the case that I am not quite telling the truth (as often young campers do not) unless I *can* swim. What such assertions often signify, however, is that one took advantage of an opportunity to have learned *that* swimming (in the sense of knowing-how to swim) involves certain capacities and to have learned these things was to have (happened to necessitate one's having) participated in the activity of learning them. I may thereby have 'learned-how' (in this as well as other senses) to swim, etc., without actually *knowing-how*.]

The foregoing discussion has called attention to certain distinctions that involve the use of so-called 'mental language.' Many psychologists have been especially careful to steer clear of getting involved with the experimental ex-

<sup>27</sup> *Ibid.*, p. 15.

<sup>28</sup> *Ibid.*

plication of such language.<sup>29</sup> Although it may not placate the suspicions of those who fear re-entry of faculty psychology into education in some new mode, I hasten to insist that to be concerned with *knowing* as a function is not necessarily to be concerned with it as a faculty. In any event, certain considerations demand that we expand our ability in education to take account of the learning possibilities that are offered by analysis of what it means to know.

The preferences of the theorist often lead him to concentrate upon one kind of learning situation to the neglect of the others. His theory is then appropriate to this situation, but becomes somewhat strained in relation to other problems of learning. A comprehensive learning theory ought to answer the questions which an intelligent non-psychologist might ask about the sorts of learning which are met in everyday life.<sup>30</sup>

One might ask, for example, "What that is worth learning is also worth knowing and what cannot be learned (properly or otherwise) except on the level of knowing?" Such is the kind of question to which the concerns represented by the present paper give rise. Nonetheless, it *may* be the case that knowing is irrelevant to good (or effective) learning. Perhaps the test that would have to be developed for knowing would be sufficiently impractical to warrant further consideration of the problem of knowledge in education. Of course, in

<sup>29</sup> "In this connection, it is interesting to note a 'philosophical' point about Tolman's system which some of its opponents have perhaps dimly perceived. Tolman himself explicitly disavows any dualistic reference for his 'freshly defined' words, and has for over thirty years insisted upon his consistent behaviorism. We do not mean even to suggest that he is anything else, either consciously or unconsciously. Nevertheless, there is a peculiar sense in which his formulation has, willy-nilly, a certain affinity with the dualistic or, as he prefers to call it, 'mentalistic' scheme. This arises from the feature we have just treated. For many thinkers of both past and present (e.g. Brentano), it is *intentionality* that ultimately defines the realm of 'mind.' Those cases of psychological description which require the use of subordinate clauses, following words like 'believe,' 'know,' 'expect,' such that the complex sentence is not a truth-function of its component propositions, are still a source of difficulty for philosophers basically sympathetic to the behaviorist program . . . When we commit ourselves to speaking of the rat's 'expectancies' rather than his 'habits,' we are likely to find ourselves involved in the problem of *reference*, *intention*, or *aboutness* (as in the above example) whether we like it or not. We do not suggest, of course, that such involvements are a necessary consequence of *all* formulations of cognitive theory; the sketch of formalization below seems to us to be free of it. But the danger is greater than in a system which is couched wholly in response language. 'Learning to . . .' is intrinsically less referential in its stress than is 'learning *that*'. . . . The reluctance of some more suspicious psychologists to take Tolman's behaviorist protestations at face value may be subtly related to this linguistic fact.

In discussing Tolman, one needs a special terminology for this situation. We have a phrase whose components (words) ordinarily occur in the data language and there refer to parts, aspects, or relations of the environment; if this phrase sometimes occurs in a grammatical context following behavior-words such as 'know,' 'expect,' 'infer' (with the connective *that*), we shall say the phrase is in the 'quasi-data language' when so used." MacCorquodale, Kenneth, and Meehl, Paul E. "Edward C. Tolman." In *Modern Learning Theory: A Critical Analysis of Five Examples*, by William K. Estes, et. al. New York: Appleton-Century-Crofts, 1954, pp. 184-185.

<sup>30</sup> Hilgard, Ernest R. *Theories of Learning*. New York: Appleton-Century-Crofts, 1948, p. 7.

either event, we would have to revise, and/or understand, our language habits for technical communication in education.<sup>31</sup>

When one notices that *the way in which we evaluate what is learned 'dictates' the way in which the learning takes place*, the door is then open for other systematic observations that may enable us to revitalize the educative process and understand it better. The teacher usually teaches with respect to the way in which the evaluation of learning will take place. He may teach in a way that would *permit* evaluation on Level 'K,' but (through administrative necessity or otherwise) may *restrict* his evaluation of learning outcomes to that of Level 'B.' And so the activity of the learner itself becomes selective, so that any interest that the teacher may have in Level 'K' is less reinforced than the student's interest in Level 'B.' Indeed, the testing may entirely miss both the learning that the teacher desires, the learning that the teacher thinks he got and learning that would be significant to know about.<sup>32</sup> I can get what I test for (desire) only if I pay the price for getting it. Unless we know the alternatives available to us for evaluation, we cannot know the expense to the system that is entailed by a given method of teaching and testing. As Kilpatrick argued long ago, the problem of method, in its wider scope, is *both* how to isolate items to be learned and how to adjust and recognize the totality of the learnings that go on in the classroom. He recognized, too, that the broadening of method to make all of the learnings at hand conscious to the teacher is a moral undertaking and poses philosophical questions.<sup>33</sup>

In his recent book, *Principles and Practices of Teaching in Secondary*

<sup>31</sup> A number of logical problems about 'learning' remain to be resolved that may be independent of psychological ones. Indeed, since philosophers as such are properly concerned with 'knowing' and 'learning' as "data" (items) of discourse (in education), their concerns may not even be with the same referents as those of psychologists.

It might also be observed that the question "Which facts that are worth learning are also worth knowing?" may be asked to point to the problem of attempting 'to know facts' in isolation, etc. What is it that I know when I know a fact?

By "test" for knowing, I mean the evaluating of what learners may be said to *know*.

<sup>32</sup> It does not follow from this, however, that "the testing may entirely miss the actual learning"—for there is no "actual learning"—or, at least there is no advantage to assuming that there is. I mean by this to say more than that since 'non-actual learning' is a peculiarity 'actual learning' cannot be considered as something that is possibly absent and is therefore not a meaningful notion. Namely, I mean to point to the fact that the test for learning must result from a choice from among the learnings that one assumes to have taken place (or that 'should' have taken place) for the purposes (or lack of purposes) of evaluation. So, in at least one significant sense, testing will always miss the so-called 'actual learning'. What is important is that it so often misses the desired and/or possible significant learning.

<sup>33</sup> Kilpatrick, William Heard. *Foundations of Method—Informal Talks on Teaching*. New York: The Macmillan Company, 1925.

While it may be argued that the *way* in which I (come to) know 'X' enters into what it is that I may be said to know (showing the connection between content and method), the same cannot be said *a priori* for 'learn.'

The *way* in which something is learned, as well, of course, as the *way* in which "kinds" (see below) of learnings are tested for, do not themselves properly constitute levels of learning, on my view. I have purposely not discussed those notions of learning (ordinarily used adjectively with 'learning') that are neither what I call 'types,' 'levels' nor 'kinds' of learnings.

*Schools*, Thomas M. Risk points to the general lack of understanding of the terminology used to refer to learning outcomes in education and in psychology.

It is quite common to refer to the outcomes of learning in such terms as knowledge, understandings, abilities, skills, attitudes, and appreciations. It seems to be taken for granted that everyone understands what these terms mean and how such outcomes are acquired. But such cannot be the case; otherwise teachers would have been doing a better job of teaching. Here, again, psychologists differ about terminology, nor do they agree as to exactly what happens within an individual when he learns.<sup>34</sup>

That not everyone who teaches is adequately clear about the relation of knowing to learning is also evidenced by the fact that

Too often the teacher thinks of learning simply as memorizing facts, getting knowledge from a book or other sources, or acquiring skill by practice of some kind. While learning is involved in these activities, the teacher who so describes the learning process often does not understand the nature of the experiences involved in memorizing, getting knowledge, or acquiring skill. Many of the unfortunate practices in our classrooms are based upon a teacher attitude that reduces learning to a mechanical process. Thus repetition and drill, important as they are, may be emphasized in the wrong way, at the expense of effective functional learning.<sup>35</sup>

Ultimately, it seems to me, *the inadequacy of our conceptions in educational theory comes out in (not out of) the inadequacy of our evaluation of learning*. Furthermore, the quality of learning is affected both by what we think to be important as outcomes and by the evaluational incentives that, inevitably, the learners also learn.

Granted that some learnings are subject only to believing and not to knowing, and that other learnings are subject to neither, much of what can be learned as known is restricted to being learned as believed. The dominant kinds of testing (or testing of kinds of learning) in our educational systems produce a teaching and testing culture that is designed to reward *believers* and not *knowers*.<sup>36</sup>

[Irrespective, however, of the importance of teaching for knowing (the teaching of knowledge), it may also be maintained that we do not properly gauge,

<sup>34</sup> Risk, Thomas M. *Principles and Practices of Teaching in Secondary Schools*. Third Edition. New York: American Book Company, 1958, p. 8.

I am not here concerned with the correctness of the inference made by the author of this quote; but, rather, with the concerns that the quotation represents.

<sup>35</sup> *Ibid.*, p. 21.

<sup>36</sup> By 'teaching and testing culture', I mean the underlying ideas and methods prevailing in our society for the transmission and evaluation of things that we want people to learn. Some levels of learning dominate others in their effects on the design of our educational systems.

test, or value the *primary 'types'* of learnings that take place in schools; namely, the learning of attitudes and the learning of values, etc. And this is a strange paradox; for though our evaluation and satisfaction with outcomes in education is generally (unknowingly) restricted to the level of belief learning, it is not to that area of belief learning that is both essential and fundamental to education of any sort whatsoever.]<sup>87</sup>

By way of assisting the reader in the organization of the main concepts and ideas expressed here, I offer the diagram below. It is hardly exhaustive, even of the distinctions presented above, but does point to the variety of possible alternatives in kinds of learning.

#### KINDS OF LEARNING<sup>88</sup>

('Kinds' is here defined as the combination of Level and Type.)

<i>Level</i>	<i>Types</i>	Propositional Information	Skills	Attitudes	Values
Knowing	K		K	*	*
Believing	B		B	B	B
Non-acceptance	NAC		NAC	NAC	NAC
Non-awareness	NAW		NAW	NAW	NAW

(('K' represents a claim that learning on the level of Knowing is possible with respect to the types indicated; provided, of course, that the conditions for knowing are met. The asterisks represent a claim that learning on the level indicated with respect to the types indicated is not a logically permissible (*kinds*) alternative. While I might know that I possess a certain attitude or value, I can only believe in its appropriateness, correctness or efficacy, etc., but cannot 'know in it,' so to speak (cannot know it to be true or false). 'B' represents a claim that learning on the level of Believing is possible with respect to each of the above types. 'Non-acceptance' is here defined as the level(s) of learning that does not involve believing what was learned but does involve awareness of what was learned. 'Understanding' is absent from the above scheme and the reader may wish to consider just how one should handle this concept as a level of learning. The four levels given above do not correspond to the four meanings for 'not knowing what is learned' that were discussed earlier.))

The above diagram is also intended to show (or at least strongly suggest) that to the extent that (what I will call) a 'knowing theory' is not part of a learning theory, we do not have an adequate *human* theory of learning. Such a

<sup>87</sup> Of course, I am not saying that attitudes are only learned on the level of belief (believing).

<sup>88</sup> Any experimentally-minded readers, incidentally, who may think the sorts of categories suggested here to be potentially significant are encouraged to consider the relation to each other of rates of retention, etc., for the various kinds of learning (as well as questions of susceptibility to experimental control). I would hope, however, that such an interest would not be divorced from the caution and need, as expressed herein, to relate any psychological findings which might result from such an interest to learning *goals*, to criteria for employing levels and types (that is, with respect to their use), and not alone to the 'winning' retention rate, etc., independent of the complete educative context.

theory would answer, among others, the question "When (under what conditions) can one *know*-that a student knows *what* he has learned?"<sup>39</sup>

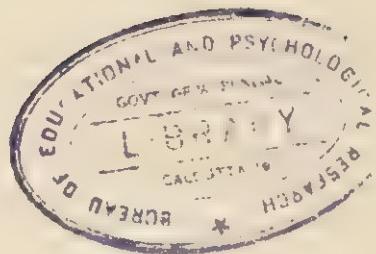
<sup>39</sup> The answer to this question would involve, I should think, consideration of the alternative performatory characteristics of the use of 'know' ('I know,' 'He knows,' 'They know,' etc.). This matter has been avoided in the present paper. Also avoided here was any extended analysis of the logic of dispositional statements.

The paper was seen in proof form by James E. McClellan. While I would in no way wish to suggest that he associates himself with any of my conclusions, I do wish to acknowledge his capable help, which both kept me from saying several things that I would not now wish to say and raised a number of other salient points for future consideration. At my request, Israel Scheffler was kind enough to look at the copy of the manuscript that was accepted for publication. The discussion of certain of his recent views herein was not contained in the copy he saw nor was it at all intended then to so proceed.

# The Act of Discovery

Jerome S. Bruner is Professor of Psychology and Co-Director of the newly established Center for Cognitive Studies at Harvard University. He has long been interested in cognitive processes—perception, memory, thinking and learning—and has written extensively in the field. His latest book is *The Process of Education*, published in the fall of 1960.

Professor Bruner's hypothesis, as expressed in this article, deals with the effects for children of active participation in the learning process. We believe that both classroom teachers and educational researchers will be stimulated by its implications.



Bureau of Ednl. & Psyl. Research  
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JEROME S. BRUNER  
Harvard University

MAIMONIDES, in his *Guide for the Perplexed*<sup>1</sup>, speaks of four forms of perfection that men might seek. The first and lowest form is perfection in the acquisition of worldly goods. The great philosopher dismisses such perfection on the ground that the possessions one acquires bear no meaningful relation to the possessor: "A great king may one morning find that there is no difference between him and the lowest person." A second perfection is of the body, its conformation and skills. Its failing is that it does not reflect on what is uniquely human about man: "he could [in any case] not be as strong as a mule." Moral perfection is the third, "the highest degree of excellency in man's character." Of this perfection Maimonides says: "Imagine a person being alone, and having no connection whatever with any other person; all his good moral principles are at rest, they are not required and give man no perfection whatever. These principles are only necessary and useful when man comes in contact with others." "The fourth kind of perfection is the true perfection of man; the possession of the highest intellectual faculties...." In justification of his assertion, this extraordinary Spanish-Judaic philosopher urges: "Examine the first three kinds of perfection; you will find that if you

<sup>1</sup> Maimonides, *Guide for the Perplexed* (New York: Dover Publications, 1956).

possess them, they are not your property, but the property of others. . . . But the last kind of perfection is exclusively yours; no one else owns any part of it."

It is a conjecture much like that of Maimonides that leads me to examine the act of discovery in man's intellectual life. For if man's intellectual excellence is the most his own among his perfections, it is also the case that the most uniquely personal of all that he knows is that which he has discovered for himself. What difference does it make, then, that we encourage discovery in the learning of the young? Does it, as Maimonides would say, create a special and unique relation between knowledge possessed and the possessor? And what may such a unique relation do for a man—or for a child, if you will, for our concern is with the education of the young?

The immediate occasion for my concern with discovery—and I do not restrict discovery to the act of finding out something that before was unknown to mankind, but rather include all forms of obtaining knowledge for oneself by the use of one's own mind—the immediate occasion is the work of the various new curriculum projects that have grown up in America during the last six or seven years. For whether one speaks to mathematicians or physicists or historians, one encounters repeatedly an expression of faith in the powerful effects that come from permitting the student to put things together for himself, to be his own discoverer.

First, let it be clear what the act of discovery entails. It is rarely, on the frontier of knowledge or elsewhere, that new facts are "discovered" in the sense of being encountered as Newton suggested in the form of islands of truth in an uncharted sea of ignorance. Or if they appear to be discovered in this way, it is almost always thanks to some happy hypotheses about where to navigate. Discovery, like surprise, favors the well prepared mind. In playing bridge, one is surprised by a hand with no honors in it at all and also by hands that are all in one suit. Yet all hands in bridge are equiprobable: one must know to be surprised. So too in discovery. The history of science is studded with examples of men "finding out" something and not knowing it. I shall operate on the assumption that discovery, whether by a schoolboy going it on his own or by a scientist cultivating the growing edge of his field, is in its essence a matter of rearranging or transforming evidence in such a way that one is enabled to go beyond the evidence so reassembled to additional new insights. It may well be that an additional fact or shred of evidence makes this larger transformation of evidence possible. But it is often not even dependent on new information.

It goes without saying that, left to himself, the child will go about discovering things for himself within limits. It also goes without saying that there are certain forms of child rearing, certain home atmospheres that lead some children to be their own discoverers more than other children. These are both topics of great interest, but I shall not be discussing them. Rather, I should like to confine myself to the consideration of discovery and "finding-out-for-

oneself" within an educational setting—specifically the school. Our aim as teachers is to give our student as firm a grasp of a subject as we can, and to make him as autonomous and self-propelled a thinker as we can—one who will go along on his own after formal schooling has ended. I shall return in the end to the question of the kind of classroom and the style of teaching that encourages an attitude of wanting to discover. For purposes of orienting the discussion, however, I would like to make an overly simplified distinction between teaching that takes place in the *expository mode* and teaching that utilizes the *hypothetical mode*. In the former, the decisions concerning the mode and pace and style of exposition are principally determined by the teacher as expositor; the student is the listener. If I can put the matter in terms of structural linguistics, the speaker has a quite different set of decisions to make than the listener: the former has a wide choice of alternatives for structuring, he is anticipating paragraph content while the listener is still intent on the words, he is manipulating the content of the material by various transformations, while the listener is quite unaware of these internal manipulations. In the hypothetical mode, the teacher and the student are in a more cooperative position with respect to what in linguistics would be called "speaker's decisions." The student is not a bench-bound listener, but is taking a part in the formulation and at times may play the principal role in it. He will be aware of alternatives and may even have an "as if" attitude toward these and, as he receives information he may evaluate it as it comes. One cannot describe the process in either mode with great precision as to detail, but I think the foregoing may serve to illustrate what is meant.

Consider now what benefit might be derived from the experience of learning through discoveries that one makes for oneself. I should like to discuss these under four headings: (1) The increase in intellectual potency, (2) the shift from extrinsic to intrinsic rewards, (3) learning the heuristics of discovering, and (4) the aid to memory processing.

1. *Intellectual potency.* If you will permit me, I would like to consider the difference between subjects in a highly constrained psychological experiment involving a two-choice apparatus. In order to win chips, they must depress a key either on the right or the left side of the machine. A pattern of payoff is designed such that, say, they will be paid off on the right side 70 per cent of the time, on the left 30 per cent, although this detail is not important. What is important is that the payoff sequence is arranged at random, and there is no pattern. I should like to contrast the behavior of subjects who think that there is some pattern to be found in the sequence—who think that regularities are discoverable—in contrast to subjects who think that things are happening quite by *chance*. The former group adopts what is called an "event-matching" strategy in which the number of responses given to each side is roughly equal to the proportion of times it pays off: in the present case R70 : L30. The group that believes there is no pattern very soon reverts to a

much more primitive strategy wherein *all* responses are allocated to the side that has the greater payoff. A little arithmetic will show you that the lazy all-and-none strategy pays off more if indeed the environment is random: namely, they win seventy per cent of the time. The event-matching subjects win about 70% on the 70% payoff side (or 49% of the time there) and 30% of the time on the side that pays off 30% of the time (another 9% for a total take-home wage of 58% in return for their labors of decision). But the world is not always or not even frequently random, and if one analyzes carefully what the event-matchers are doing, it turns out that they are trying out hypotheses one after the other, all of them containing a term such that they distribute bets on the two sides with a frequency to match the actual occurrence of events. If it should turn out that there is a pattern to be discovered, their payoff would become 100%. The other group would go on at the middling rate of 70%.

What has this to do with the subject at hand? For the person to search out and find regularities and relationships in his environment, he must be armed with an expectancy that there will be something to find and, once aroused by expectancy, he must devise ways of searching and finding. One of the chief enemies of such expectancy is the assumption that there is nothing one can find in the environment by way of regularity or relationship. In the experiment just cited, subjects often fall into a habitual attitude that there is either nothing to be found or that they can find a pattern by looking. There is an important sequel in behavior to the two attitudes, and to this I should like to turn now.

We have been conducting a series of experimental studies on a group of some seventy school children over the last four years. The studies have led us to distinguish an interesting dimension of cognitive activity that can be described as ranging from *episodic empiricism* at one end to *cumulative constructionism* at the other. The two attitudes in the choice experiments just cited are illustrative of the extremes of the dimension. I might mention some other illustrations. One of the experiments employs the game of Twenty Questions. A child—in this case he is between 10 and 12—is told that a car has gone off the road and hit a tree. He is to ask questions that can be answered by "yes" or "no" to discover the cause of the accident. After completing the problem, the same task is given him again, though he is told that the accident had a different cause this time. In all, the procedure is repeated four times. Children enjoy playing the game. They also differ quite markedly in the approach or strategy they bring to the task. There are various elements in the strategies employed. In the first place, one may distinguish clearly between two types of questions asked: the one is designed for locating constraints in the problem, constraints that will eventually give shape to an hypothesis; the other is the hypothesis as question. It is the difference between, "Was there anything wrong with the driver?" and "Was the driver rushing to the doctor's

office for an appointment and the car got out of control?" There are children who precede hypotheses with efforts to locate constraint and there are those who, to use our local slang, are "pot-shotters," who string out hypotheses non-cumulatively one after the other. A second element of strategy is its connectivity of information gathering: the extent to which questions asked utilize or ignore or violate information previously obtained. The questions asked by children tend to be organized in cycles, each cycle of questions usually being given over to the pursuit of some particular notion. Both within cycles and between cycles one can discern a marked difference on the connectivity of the child's performance. Needless to say, children who employ constraint location as a technique preliminary to the formulation of hypotheses tend to be far more connected in their harvesting of information. Persistence is another feature of strategy, a characteristic compounded of what appear to be two components: a sheer doggedness component, and a persistence that stems from the sequential organization that a child brings to the task. Doggedness is probably just animal spirits or the need for achievement —what has come to be called *n-ach*. Organized persistence is a maneuver for protecting our fragile cognitive apparatus from overload. The child who has flooded himself with disorganized information from unconnected hypotheses will become discouraged and confused sooner than the child who has shown a certain cunning in his strategy of getting information—a cunning whose principal component is the recognition that the value of information is not simply in getting it but in being able to carry it. The persistence of the organized child stems from his knowledge of how to organize questions in cycles, how to summarize things to himself, and the like.

Episodic empiricism is illustrated by information gathering that is unbound by prior constraints, that lacks connectivity, and that is deficient in organizational persistence. The opposite extreme is illustrated by an approach that is characterized by constraint sensitivity, by connective maneuvers, and by organized persistence. Brute persistence seems to be one of those gifts from the gods that make people more exaggeratedly what they are.<sup>2</sup>

Before returning to the issue of discovery and its role in the development of thinking, let me say a word more about the ways in which information may get transformed when the problem solver has actively processed it. There is first of all a pragmatic question: what does it take to get information processed into a form best designed to fit some future use? Take an experiment by Zajonc<sup>3</sup> as a case in point. He gives groups of subjects information of a controlled kind, some groups being told that their task is to transmit the information to others, others that it is merely to be kept in mind. In general, he finds

<sup>2</sup> I should also remark in passing that the two extremes also characterize concept attainment strategies as reported in *A Study of Thinking* by J. S. Bruner *et al.* (New York: J. Wiley, 1956). Successive scanning illustrates well what is meant here by episodic empiricism; conservative focussing is an example of cumulative constructionism.

<sup>3</sup> R. B. Zajonc (Personal communication, 1957).

more differentiation and organization of the information received with the intention of being transmitted than there is for information received passively. An active set leads to a transformation related to a task to be performed. The risk, to be sure, is in possible overspecialization of information processing that may lead to such a high degree of specific organization that information is lost for general use.

I would urge now in the spirit of an hypothesis that emphasis upon discovery in learning has precisely the effect upon the learner of leading him to be a constructionist, to organize what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have to be put. It is, if you will, a necessary condition for learning the variety of techniques of problem solving, of transforming information for better use, indeed for learning how to go about the very task of learning. Practice in discovering for oneself teaches one to acquire information in a way that makes that information more readily viable in problem solving. So goes the hypothesis. It is still in need of testing. But it is an hypothesis of such important human implications that we cannot afford not to test it—and testing will have to be in the schools.

2. *Intrinsic and extrinsic motives.* Much of the problem in leading a child to effective cognitive activity is to free him from the immediate control of environmental rewards and punishments. That is to say, learning that starts in response to the rewards of parental or teacher approval or the avoidance of failure can too readily develop a pattern in which the child is seeking cues as to how to conform to what is expected of him. We know from studies of children who tend to be early over-achievers in school that they are likely to be seekers after the "right way to do it" and that their capacity for transforming their learning into viable thought structures tends to be lower than children merely achieving at levels predicted by intelligence tests. Our tests on such children show them to be lower in analytic ability than those who are not conspicuous in overachievement.<sup>4</sup> As we shall see later, they develop rote abilities and depend upon being able to "give back" what is expected rather than to make it into something that relates to the rest of their cognitive life. As Maimonides would say, their learning is not their own.

The hypothesis that I would propose here is that to the degree that one is able to approach learning as a task of discovering something rather than "learning about" it, to that degree will there be a tendency for the child to carry out his learning activities with the autonomy of self-reward or, more properly by reward that is discovery itself.

To those of you familiar with the battles of the last half-century in the field of motivation, the above hypothesis will be recognized as controversial. For

<sup>4</sup> J. S. Bruner and A. J. Caron, "Cognition, Anxiety, and Achievement in the Preadolescent," *Journal of Educational Psychology* (in press).

the classic view of motivation in learning has been, until very recently, couched in terms of a theory of drives and reinforcement: that learning occurred by virtue of the fact that a response produced by a stimulus was followed by the reduction in a primary drive state. The doctrine is greatly extended by the idea of secondary reinforcement: any state associated even remotely with the reduction of a primary drive could also have the effect of producing learning. There has recently appeared a most searching and important criticism of this position, written by Professor Robert White,<sup>5</sup> reviewing the evidence of recently published animal studies, of work in the field of psychoanalysis, and of research on the development of cognitive processes in children. Professor White comes to the conclusion, quite rightly I think, that the drive-reduction model of learning runs counter to too many important phenomena of learning and development to be either regarded as general in its applicability or even correct in its general approach. Let me summarize some of his principal conclusions and explore their applicability to the hypothesis stated above.

I now propose that we gather the various kinds of behavior just mentioned, all of which have to do with effective interaction with the environment, under the general heading of competence. According to Webster, competence means fitness or ability, and the suggested synonyms include capability, capacity, efficiency, proficiency, and skill. It is therefore a suitable word to describe such things as grasping and exploring, crawling and walking, attention and perception, language and thinking, manipulating and changing the surroundings, all of which promote an effective—a competent—interaction with the environment. It is true of course, that maturation plays a part in all these developments, but this part is heavily overshadowed by learning in all the more complex accomplishments like speech or skilled manipulation. I shall argue that it is necessary to make competence a motivational concept; there is *competence motivation* as well as competence in its more familiar sense of achieved capacity. The behavior that leads to the building up of effective grasping, handling, and letting go of objects, to take one example, is not random behavior that is produced by an overflow of energy. It is directed, selective, and persistent, and it continues not because it serves primary drives, which indeed it cannot serve until it is almost perfected, but because it satisfies an intrinsic need to deal with the environment.<sup>6</sup>

I am suggesting that there are forms of activity that serve to enlist and develop the competence motive, that serve to make it the driving force behind behavior. I should like to add to White's general premise that the *exercise* of competence motives has the effect of strengthening the degree to which they gain control

<sup>5</sup> R. W. White, "Motivation Reconsidered: The Concept of Competence," *Psychological Review*, LXVI (1959), 297-333.

<sup>6</sup> *Ibid.*, pp. 317-18.

over behavior and thereby reduce the effects of extrinsic rewards or drive gratification.

The brilliant Russian psychologist Vigotsky<sup>7</sup> characterizes the growth of thought processes as starting with a dialogue of speech and gesture between child and parent; autonomous thinking begins at the stage when the child is first able to internalize these conversations and "run them off" himself. This is a typical sequence in the development of competence. So too in instruction. The narrative of teaching is of the order of the conversation. The next move in the development of competence is the internalization of the narrative and its "rules of generation" so that the child is now capable of running off the narrative on his own. The hypothetical mode in teaching by encouraging the child to participate in "speaker's decisions" speeds this process along. Once internalization has occurred, the child is in a vastly improved position from several obvious points of view—notably that he is able to go beyond the information he has been given to generate additional ideas that can either be checked immediately from experience or can, at least, be used as a basis for formulating reasonable hypotheses. But over and beyond that, the child is now in a position to experience success and failure not as reward and punishment, but as information. For when the task is his own rather than a matter of matching environmental demands, he becomes his own paymaster in a certain measure. Seeking to gain control over his environment, he can now treat success as indicating that he is on the right track, failure as indicating he is on the wrong one.

In the end, this development has the effect of freeing learning from immediate stimulus control. When learning in the short run leads only to pellets of this or that rather than to mastery in the long run, then behavior can be readily "shaped" by extrinsic rewards. When behavior becomes more long-range and competence-oriented, it comes under the control of more complex cognitive structures, plans and the like, and operates more from the inside out. It is interesting that even Pavlov, whose early account of the learning process was based entirely on a notion of stimulus control of behavior through the conditioning mechanism in which, through contiguity a new conditioned stimulus was substituted for an old unconditioned stimulus by the mechanism of stimulus substitution, that even Pavlov recognized his account as insufficient to deal with higher forms of learning. To supplement the account, he introduced the idea of the "second signalling system," with central importance placed on symbolic systems such as language in mediating and giving shape to mental life. Or as Luria<sup>8</sup> has put it, "the first signal system [is] concerned with directly perceived stimuli, the second with systems of verbal elaboration." Luria, commenting on the importance of the transition from first to second

<sup>7</sup>L. S. Vigotsky, *Thinking and Speech* (Moscow, 1934).

<sup>8</sup>A. L. Luria, "The Directive Function of Speech in Development and Dissolution," *Word*, XV (1959), 341-464.

signal system, says: "It would be mistaken to suppose that verbal intercourse with adults merely changes the contents of the child's conscious activity without changing its form. . . . The word has a basic function not only because it indicates a corresponding object in the external world, but also because it abstracts, isolates the necessary signal, generalizes perceived signals and relates them to certain categories; it is this systematization of direct experience that makes the role of the word in the formation of mental processes so exceptionally important."<sup>9, 10</sup>

It is interesting that the final rejection of the universality of the doctrine of reinforcement in direct conditioning came from some of Pavlov's own students. Ivanov-Smolensky<sup>11</sup> and Krasnogorsky<sup>12</sup> published papers showing the manner in which symbolized linguistic messages could take over the place of the unconditioned stimulus and of the unconditioned response (gratification of hunger) in children. In all instances, they speak of these as *replacements* of lower, first-system mental or neural processes by higher order or second-system controls. A strange irony, then, that Russian psychology that gave us the notion of the conditioned response and the assumption that higher order activities are built up out of colligations or structurings of such primitive units, rejected this notion while much of American learning psychology has stayed until quite recently within the early Pavlovian fold (see, for example, a recent article by Spence<sup>13</sup> in the *Harvard Educational Review* or Skinner's treatment of language<sup>14</sup> and the attacks that have been made upon it by linguists such as Chomsky<sup>15</sup> who have become concerned with the relation of language and cognitive activity). What is the more interesting is that Russian pedagogical theory has become deeply influenced by this new trend and is now placing much stress upon the importance of building up a more active symbolical approach to problem solving among children.

To sum up the matter of the control of learning, then, I am proposing that the degree to which competence or mastery motives come to control behavior, to that degree the role of reinforcement or "extrinsic pleasure" wanes in shaping behavior. The child comes to manipulate his environment more actively and achieves his gratification from coping with problems. Symbolic modes of representing and transforming the environment arise and the importance of stimulus-response-reward sequences declines. To use the metaphor

<sup>9</sup> *Ibid.*, p. 12.

<sup>10</sup> For an elaboration of the view expressed by Luria, the reader is referred to the forthcoming translation of I. S. Vigotsky's 1934 book being published by John Wiley and Sons and the Technology Press.

<sup>11</sup> A. G. Ivanov-Smolensky, "Concerning the Study of the Joint Activity of the First and Second Signal Systems," *Journal of Higher Nervous Activity*, I (1951), 1.

<sup>12</sup> N. D. Krasnogorsky, *Studies of Higher Nervous Activity in Animals and in Man*, Vol. I (Moscow, 1954).

<sup>13</sup> K. W. Spence, "The Relation of Learning Theory to the Technique of Education," *Harvard Educational Review*, XXIX (1959), 84-95.

<sup>14</sup> B. F. Skinner, *Verbal Behavior* (New York: Appleton-Century-Crofts, 1957).

<sup>15</sup> N. Chomsky, *Syntactic Structure* (The Hague, The Netherlands: Mouton & Co., 1957).

that David Riesman developed in a quite different context, mental life moves from a state of outer-directedness in which the fortuity of stimuli and reinforcement are crucial to a state of inner-directedness in which the growth and maintenance of mastery become central and dominant.

3. *Learning the heuristics of discovery.* Lincoln Steffens,<sup>16</sup> reflecting in his *Autobiography* on his under graduate education at Berkeley, comments that his schooling was overly specialized on learning about the known and that too little attention was given to the task of finding out about what was not known. But how does one train a student in the techniques of discovery? Again I would like to offer some hypotheses. There are many ways of coming to the arts of inquiry. One of them is by careful study of its formalization in logic, statistics, mathematics, and the like. If a person is going to pursue inquiry as a way of life, particularly in the sciences, certainly such study is essential. Yet, whoever has taught kindergarten and the early primary grades or has had graduate students working with him on their theses—I choose the two extremes for they are both periods of intense inquiry—knows that an understanding of the formal aspect of inquiry is not sufficient. There appear to be, rather, a series of activities and attitudes, some directly related to a particular subject and some of them fairly generalized, that go with inquiry and research. These have to do with the *process* of trying to find out something and while they provide no guarantee that the *product* will be any great discovery, their absence is likely to lead to awkwardness or aridity or confusion. How difficult it is to describe these matters—the heuristics of inquiry. There is one set of attitudes or ways of doing that has to do with sensing the relevance of variables—how to avoid getting stuck with edge effects and getting instead to the big sources of variance. Partly this gift comes from intuitive familiarity with a range of phenomena, sheer “knowing the stuff.” But it also comes out of a sense of what things among an ensemble of things “smell right” in the sense of being of the right order of magnitude or scope or severity.

The English philosopher Weldon describes problem solving in an interesting and picturesque way. He distinguishes between difficulties, puzzles, and problems. We solve a problem or make a discovery when we impose a puzzle form on to a difficulty that converts it into a problem that can be solved in such a way that it gets us where we want to be. That is to say, we recast the difficulty into a form that we know how to work with, then work it. Much of what we speak of as discovery consists of knowing how to impose what kind of form on various kinds of difficulties. A small part but a crucial part of discovery of the highest order is to invent and develop models or “puzzle forms” that can be imposed on difficulties with good effect. It is in this area that the truly powerful mind shines. But it is interesting to what degree perfectly ordinary people can, given the benefit of instruction, construct quite interesting and what, a century ago, would have been considered greatly original models.

<sup>16</sup> L. Steffens. *Autobiography of Lincoln Steffens* (New York: Harcourt, Brace, 1931).

Now to the hypothesis. It is my hunch that it is only through the exercise of problem solving and the effort of discovery that one learns the working heuristic of discovery, and the more one has practice, the more likely is one to generalize what one has learned into a style of problem solving or inquiry that serves for any kind of task one may encounter—or almost any kind of task. I think the matter is self-evident, but what is unclear is what kinds of training and teaching produce the best effects. How do we teach a child to, say, cut his losses but at the same time be persistent in trying out an idea; to risk forming an early hunch without at the same time formulating one so early and with so little evidence as to be stuck with it waiting for appropriate evidence to materialize; to pose good testable guesses that are neither too brittle nor too sinuously incorrigible; etc., etc. Practice in inquiry, in trying to figure out things for oneself is indeed what is needed, but in what form? Of only one thing I am convinced. I have never seen anybody improve in the art and technique of inquiry by any means other than engaging in inquiry.

4. *Conservation of memory.* I should like to take what some psychologists might consider a rather drastic view of the memory process. It is a view that in large measure derives from the work of my colleague, Professor George Miller.<sup>17</sup> Its first premise is that the principal problem of human memory is not storage, but retrieval. In spite of the biological unlikeliness of it, we seem to be able to store a huge quantity of information—perhaps not a full tape recording, though at times it seems we even do that, but a great sufficiency of impressions. We may infer this from the fact that recognition (i.e., recall with the aid of maximum prompts) is so extraordinarily good in human beings—particularly in comparison with spontaneous recall where, so to speak, we must get out stored information without external aids or prompts. The key to retrieval is organization or, in even simpler terms, knowing where to find information and how to get there.

Let me illustrate the point with a simple experiment. We present pairs of words to twelve-year-old children. One group is simply told to remember the pairs, that they will be asked to repeat them later. Another is told to remember them by producing a word or idea that will tie the pair together in a way that will make sense to them. A third group is given the mediators used by the second group when presented with the pairs to aid them in tying the pairs into working units. The word pairs include such juxtapositions as "chair-forest," "sidewalk-square," and the like. One can distinguish three styles of mediators and children can be scaled in terms of their relative preference for each: *generic mediation* in which a pair is tied together by a superordinate idea: "chair and forest are both made of wood"; *thematic mediation* in which the two terms are imbedded in a theme or little story: "the lost child sat on a chair in the middle of the forest"; and *part-whole mediation* where "chairs are made from trees

<sup>17</sup> G. A. Miller, "The Magical Number Seven, Plus or Minus Two," *Psychological Review*, LXIII (1956), 81-97.

"in the forest" is typical. Now, the chief result, as you would all predict, is that children who provide their own mediators do best—indeed, one time through a set of thirty pairs, they recover up to 95% of the second words when presented with the first ones of the pairs, whereas the uninstructed children reach a maximum of less than 50% recovered. Interestingly enough, children do best in recovering materials tied together by the form of mediator they most often use.

One can cite a myriad of findings to indicate that any organization of information that reduces the aggregate complexity of material by imbedding it into a cognitive structure a person has constructed will make that material more accessible for retrieval. In short, we may say that the process of memory, looked at from the retrieval side, is also a process of problem solving: how can material be "placed" in memory so that it can be got on demand?

We can take as a point of departure the example of the children who developed their own technique for relating the members of each word pair. You will recall that they did better than the children who were given by exposition the mediators they had developed. Let me suggest that in general, material that is organized in terms of a person's own interests and cognitive structures is material that has the best chance of being accessible in memory. That is to say, it is more likely to be placed along routes that are connected to one's own ways of intellectual travel.

In sum, the very attitudes and activities that characterize "figuring out" or "discovering" things for oneself also seems to have the effect of making material more readily accessible in memory.

# Practice in Teaching

*In his present article Judson T. Shaplin describes and analyzes teaching as behavior. On the basis of this analysis, he argues that practice in teaching is a necessary and important part of teacher education.*

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IN THIS PAPER\* I will attempt to provide a justification for the inclusion of practice as a part of the training of teachers. A significant number of people believe that practice in teaching is unnecessary—that an intelligent, liberally-educated individual, well grounded in a subject field, is ready to embark upon teaching without a period of practice under guidance. A less radical but related belief is that training may properly include an apprenticeship in the schools under a "master teacher," but not the formal, academic study of teaching prescribed in most teacher education programs.

In my opinion, individuals who hold these views underestimate seriously the difficulty of teaching under present conditions in the schools. They fail to grasp the complexity of the process of teaching and the subtleties of the learning expected as a result of teaching, and set low standards for the performance of individual teachers. These beliefs are in part rationalizations

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or intellectualizations arising from the conflict between two educational streams in this country, the liberal arts college and the teachers college, and in part protests against the bureaucratic administration of certification requirements. They do not proceed from a rational analysis of the nature and tasks of teaching.

#### A. FUNDAMENTAL ASSUMPTIONS

The following assumptions are fundamental to a justification of practice as a part of the training of teachers:

1. *Teaching is behavior, and as behavior is subject to analysis, change, and improvement.*

The concept of improvement implies that there are controlling objectives in teaching, and that the behavior of teaching can be organized to accomplish these objectives. I am also making the assumption that practice conditions can be established which will enable the teacher to learn *to control* his behavior.

Individuals vary greatly in their talent for teaching and in their readiness to adapt their behavior in appropriate directions.<sup>1</sup> But to speak of teachers as being "born, not made" is to turn a cute phrase and beg the basic question entirely. The purpose of practice, as with all aspects of the training of teachers, is to take a novice where he is at the moment, and work toward improved teaching behavior.

2. *Much of the habitual behavior which individuals have developed in other contexts is inappropriate for the teaching situation.*

Most individuals have developed consistent ways of behaving in a variety of roles—as members of a family, as students, in voluntary associations, in friendship relationships. Basic attitudes and orientations toward people developed in these contexts are frequently in direct conflict with the specialized role expectations found in teaching. The teaching role is, or should be, dictated by the essential conditions of learning, and by the formal organization of aspects of schools. Practice provides an opportunity to learn the role expectations of teaching with a minimum of trauma, and encourages the novice to analyze the patterns characteristic of his behavior. The assumption is made that human beings are creatures of habit, that much of recurrent human behavior is conducted at unconscious or pre-conscious levels of awareness, and that most individuals ordinarily do not make sophisticated analyses of shifting expectations as they move from role to role.

For example, a young man raised in an autocratic family atmosphere may automatically assume an autocratic stance in the classroom, or, if he is in

<sup>1</sup> The use of the word "appropriate" in this context requires definition. Behavior is inappropriate when it is destructive of the status of the school as an institution, when it interferes with known principles of learning and sets up negative learning conditions, when the content of instruction is based on ignorance, when personal characteristics interfere with the conditions necessary for learning or prevent the necessary interaction between teacher and students.

rebellion against authority, he may try to remove all symbols of authority from his role as a teacher. Others may carry excessively permissive or friendly attitudes into teaching.

3. *Under present conditions, much teaching is conducted under conditions of stress.*

Habitual reactions or the usual defense mechanisms may be inappropriate, even crippling, under these circumstances. Practice should provide a gradual induction into teaching, a cushion against the "reality shock" which so many new teachers experience.

To illustrate the stress conditions of teaching, let me describe the rather typical experience of a beginning teacher. Common sense would suggest that his beginning load should be lighter, that it should include fewer preparations, with free periods for planning. Not at all. Given a few months warning of his assignment, armed with a sketchy curriculum guide and an assortment of textbooks, he enters upon a full teaching schedule of five or more classes a day, and a bewildering complement of extra duties. He is treated as though he were a full-fledged, fully-certified teacher, and in theory, at least, the same expectations are held of him as for his neighbor of twenty-five years experience. Usually his senior colleagues have chosen the favorite courses and the ablest students, so the novice quite often faces the more difficult classes of slow, bored, and belligerent students. If he has standards for himself, his work is never done—he can never know enough, plan enough, or know the feeling of completion.

Another element of stress in the teaching situation is the high demand placed on teachers for interaction with others. The secondary teacher faces large numbers of students, each for short periods of time. The elementary teacher faces smaller numbers of students, but for sustained periods of time. Few occupations demand such continuous human interaction, to which is coupled the constant intent to influence the behavior of others. We have a deep cultural value in America, shared by many novice teachers prior to any training, that the teacher has a commitment to the individual student—to know him, to know where he stands in his work, and to know how to help him as an individual. In the face of large numbers of students, the teacher can never carry out these objectives and must always make compromises with his ideal.

Practice provides an opportunity to analyze the characteristic defenses which a teacher employs in the face of stress, to test the appropriateness of these defenses, and to develop rational, controlled behavior to handle the stress conditions. In many ways the situation is similar to the process of psychotherapy, though with less intent to change the basic personality: the examination of the appropriateness of reactions and defenses, the inquiry into why things are this way, the achievement of emotional insight, and the search for new adaptive behavior congenial to the emotional growth that takes place.

4. *Teaching is an extremely complex kind of behavior, involving the full range of thought processes, communication, and physical action.*

Underlying teaching are a wide range of value premises and value conflicts. Teaching requires highly specialized knowledge as well as specialized methods of presentation dictated by the nature of the knowledge selected, the essentials of learning, and the capacities of the students.

The planning, the process, and the analysis of teaching depend upon findings, concepts, and generalizations from many disciplines, including the academic subject fields, the behavioral sciences, and the corresponding sub-disciplines within professional education. One of our major difficulties is that the relevant concepts and generalizations have usually been developed in contexts other than teaching. Thus, their use requires a restudy and reorganization of the material for specific application to teaching. The teaching act, requires a practical synthesis by the teacher of this material from many fields.

It is inefficient and unrealistic to expect the novice teacher to achieve his own synthesis of the many disciplines contributing to teaching, and to analyze and improve his own teaching behavior, without systematic help from more experienced and expert professors and teachers who have specialized in both the content and process of teaching, and who have attempted to make the kind of synthesis which is required of the novice. An essential of practice for novice teachers, then, is the development in the schools and colleges of a corps of trained supervisors and instructors, and the recognition that the analysis of teaching requires highly specialized skill, knowledge and training.

5. *Teachers, through practice, can learn to analyze, criticize, and control their own teaching behavior.*

Training in self-analysis (of teaching) should be a primary objective in practice, for most of teaching occurs in isolation from other critical adults.

The isolation of teachers from critical appraisal of their work by other adults of equal or greater capacity is one of the distinctive features of the organization of the American schools. Supervisory services are minimal. Much of the in-service study undertaken by teachers has little specific application to the improvement of the instruction they offer. Until this situation is changed, major reliance must be placed upon the ability of the teacher to analyze and criticize his own work. As is true with most abilities, teachers vary enormously in their capacity for self-analysis and in their ability to bring about changes in behavior as a result of self-analysis.

In practice, a conscious effort should be made to provide opportunities for self-evaluation, to establish a persistent mood of self-criticism, and to train teachers in methods of self-evaluation. One way to approach this problem is to think of a teaching sequence as an experimental trial: objectives are set, material is selected as a vehicle for accomplishing the objectives, methods of instruction adapted to the material are applied, and ways of evaluating

the learning of students are devised. The trial is run, and expectations at each point of the sequence are checked against what actually happens as observed by the teacher himself. During the practice period, the teacher's observations can be checked against the observations of the supervisor. The contrast of observed images of the teaching sequence provides the basis for learning to be self-observant and self-critical.

6. *Practice has the dual purpose of training and the elimination of the unfit.*

In this memorandum, so far, emphasis has been placed upon the training function of practice, and this should probably be the primary emphasis. Yet many students train for teaching who are fundamentally unsuited for it. The conditions of practice must stimulate reality conditions as closely as possible to provide a *test* of the candidate's capacity, in order to help him if he shows potential, and to eliminate him if he proves unfit. An adequate test can be conducted only under conditions in which the teacher is basically responsible for the instruction and behavior of the students, and not under conditions where basic responsibility still remains with the supervising teacher.

Teachers fail for a variety of reasons, not easily classified, because they involve the full range of human behavior. Some types of behavior are remarkably persistent, and yield so slowly to "treatment" that it is inefficient to attempt to train the person as a teacher. For example, individuals with certain types of neurotic character organization react poorly to the stress of teaching, and develop anxiety states, depression, and even psychotic episodes during their first weeks in the classroom. Others are basically inarticulate; knowledge is compartmentalized and there is no free interchange from compartment to compartment, with the result that they must bear down their chosen tracks without flexibility, unable to answer questions, unable to see any answers but their own. We need to identify such individuals and others, during practice, when the results of such behavior can be better controlled and are not so disastrous to the persons involved. Failure in practice is to be preferred to failure in teaching, on all counts.

7. *Practice provides the experience which gives meaning to many other aspects of instruction in education (teaching).*

A corollary to this statement is that some aspects of practice should come very early in training.

Much of the instructional material of education appears, on the surface, merely to be organized common sense. To the novice, with no experience in handling the difficult problems of teaching, this material seems simple-minded and unnecessary. After an involvement in practice, the same questions become compelling, and the teacher is strongly motivated to seek answers to the questions which are now his. He asks questions about concepts and knowledge in his subject field, sees new ways to organize the material for

his teaching purposes. He seeks the experience of others in employing a variety of methods in a purposive manner. If practice occurs simultaneously with other instruction, the teacher can "try out" principles, concepts and content in his own teaching.

### B. VARIETIES OF PRACTICE

In the first part of this paper I have attempted to justify the inclusion of practice as a part of the training of teachers. My task now is to identify and describe what I consider to be the fundamental types of practice which should be part of systematic training. I will avoid the cataloguing of "laboratory experiences" so characteristic of the literature of teacher education, and attempt instead an *a priori* ordering of types of practice.

I do not believe that teachers, during the practice period, should be burdened with the full range of activities expected of their more experienced colleagues. Practice should not be viewed as a total immersion of the teacher in the tasks of the school, to test his strength and endurance, but rather as a period of concentration upon particularly significant competences required of teachers. It is the nature of teacher education that the components of training can be listed, but can rarely be provided *in toto*. We are forced to concentrate on essentials, and our choices must be made with care. I shall now discuss practice leading toward competence in three types of behavior which seem crucial to the teaching process. These are: 1) Practice in the *behavioral* analysis of teaching and learning; 2) Practice in establishing the pre-conditions of teaching; 3) Practice in the organization of instruction. These three types of behavior represent different primary foci for the analysis of teaching. Because teaching is a complex process, it is necessary to concentrate practice on one or another feature at any given time, as a systematic way of proceeding, but in any given sequence of teaching all three types are inevitably brought into play.

#### I. Practice in the behavioral analysis of teaching and learning.

The basic objective of this area of practice is to train the teacher to think in terms of variables of behavior, the measurement of variables, and the interaction of variables in the teaching process. I would hope to induce the teacher to think experimentally, as exemplified by the statement: "If I do X, under specified conditions, then I can expect Y to happen, all other things being equal." Ideally, the teacher will learn to think of teaching and learning as behavior subject to analysis, although he will realize that experimental conditions and experimental control are rarely obtained in teaching. There are four components to this type of practice.

a. *Practice in the application of principles and concepts from the behavioral sciences.* The behavioral sciences provide our principal resources for the analysis of the behavior of the classroom, providing broad principles, concepts, and categories. For example, there are many child development

studies which clarify the effects of different kinds and degrees of reward and punishment, under varying conditions. These studies provide the concepts, theory, and categories of behavior for the analysis of similar phenomena in the classroom. The development of concepts and theory for use by teachers in observing and understanding particular incidents of classroom behavior can be conducted as a part of courses in the behavioral sciences; it should also be an integral part of teaching practice. One fairly consistent failing in teacher education at present is the amount of loose, unsystematic observation of teaching that is required—observation for observation's sake, rather than with systematic purpose. A more consistent application of social science methodology and theory is clearly required.

Of particular importance, to be derived from the type of analysis of behavior I am suggesting, is the elimination of the type of dualistic, "either-or", thinking and the moralistic categorizing of behavior so common in teachers. I am thinking of the constant use of such words as "good," "bad," "lazy," "bright," "stupid," etc., and of oppositional terms such as authoritarian-democratic and lecture-discussion.

b. *Practice in the analysis of the process of teaching.* The preceding section dealt with the analysis of piecemeal criteria, with practice in the observation and analysis of discrete phenomena. There should also be a direct concern with practice in the observation and analysis of the total process of teaching: the interaction of critical variables, the patterns of teaching and learning, the role of the teacher under varying conditions. I am personally impressed with the need for this type of "process analysis," and think that it is a relatively underdeveloped area in education.

c. *Practice in the observation and analysis of a variety of models of teaching: a concern and tolerance for styles of teaching.* Central for consideration here is the fact that novice teachers have had experience with a limited number of teaching models, under conditions where they were the learners and where their concern for teaching was not systematic. The most recent models were college professors, who enjoy conditions of voluntary studentship, a selected student body, and the intrinsic interest of advanced study which are very different from those faced by the elementary and secondary school teacher. It is natural for the novice to imitate the most recently admired models, consciously or unconsciously, and it is therefore important during practice for the novice to observe and analyze, under guidance, teaching by a variety of more appropriate models.

Another important aspect of the observation of teaching by a variety of models is the consideration of styles of teaching. Teaching, in addition to being the conscious control of behavior to achieve certain goals, calls into play the total personality, and is a highly personal and creative experience. There is room for wide variation in idiosyncratic behavior, for behavior

adapted to the personal qualities and capacities of the teacher. I would argue here that individual *styles* of teaching should be analyzed carefully, adapted to varying conditions, made conscious. Both the novice and the supervisor should be fully alert to stylistic differences in teaching, and to the consequences of such differences, whether constructive or inappropriate.

d. *Practice in the analysis of the conditions of teaching.* The purpose here is to develop an understanding of the variations in conditions and settings under which teaching takes place: the ways in which schools are organized and the differences which occur when one or another organizing principle is followed; the social and cultural environment of the surrounding community; the basic attitudes of the students toward school and teachers; the particular role expectations of teachers in the school setting. A basic orientation toward these problems can be developed through courses and lectures dealing with them specifically; practice provides the opportunity for concrete analysis of one or more particular school settings as tests of the theoretical presentation. There should probably be opportunities for systematic observation of teaching under different conditions: in urban, suburban, and rural schools, in schools in different social class environments, etc. It is here assumed that the teacher has a greater chance to resolve conflict if he is able to identify and understand its sources.

2. *Practice in establishing the pre-conditions of teaching—the essentials of classroom management.*

In this section I am concerned with certain gross, or macroscopic, aspects of teaching behavior which permit or facilitate teaching and learning. These are the kinds of behavior which we frequently assume teachers to have, failing to realize that the novice may have a distorted and incomplete self-image. Frequently this kind of behavior is the easiest and most rewarding to analyze, since dramatic changes in classroom performance can often result from minor adjustments.

a. *Personal characteristics.* By personal characteristics or qualities, I mean characteristic gestures, posture, modes of action, speech patterns, grooming, and a wide variety of similar types of behavior. These ways of behaving must come under systematic scrutiny and be tested for their appropriateness for role of teacher. Under some conditions, a particular style of grooming may be offensive to students; certain speech patterns may be subject to ridicule. Systematic description of all the possible behaviors in this category is not possible, because the behavior is peculiar to the individual and to the conditions under which he is acting.

b. *Communication skills.* Here I refer to aspects of the process of communication: the capacity of the novice to verbalize, to translate an idea into intelligible speech, to draw upon his store of knowledge, to illustrate the points he is making, the kind of logic and thought process he follows, his

concept of the nature of proof, his recognition of the cues of understanding in his students, his capacity to listen before forming judgments, and other complicated phenomena of the communication process. The first attempts of many teachers are ludicrous and without insight, but a conscious concern for communication skills can lead to the development of improved practices. During the early stages of practice with which this paper deals, this kind of analysis and interpretation takes place at a relatively gross level; the kind of behavior I am discussing can also be made the subject of extremely deep and sophisticated analysis.

c. *Interaction skills.* One important way of classifying human behavior is through the study of interaction patterns of individuals with others. In this type of analysis, the focus of attention is placed upon the pattern of initiation and response, rather than upon content, and as one way of analyzing behavior it is of great value in helping novice teachers. The following kinds of questions are raised: What is the length and character of interaction sequences between teacher and student? What is the characteristic interaction rate and pattern of the teacher? Is the teacher capable of controlling his interaction pattern? Is there interaction between students? Of what character? Novice teachers vary enormously in their capacity to elicit and maintain the variety of interactional patterns required for instructional purposes. Some of the most common early failures are the following: the encouragement through "omnibus" questioning of responses from a large number of students, only one of whom can be selected, and interpreting this as "extensive participation"; intolerance of delay, silence, time for thought, with the interpretation that rapid, incisive interaction with a large number of students is "good teaching"; lack of awareness of the proportion of total time taken up by the teacher's own interaction; favoring of high interaction students and frustrating of students who have less aggressive ways of interacting. Systematic changes in the behavior of teachers can be made by observation, analysis and planned control of interaction.

d. *The assessment of baselines of learning in students.* Though the novice teacher may have considerable competence in the formal testing of learning, aptitude, and achievement, and a considerable understanding of the theoretical concepts of individual differences, he must also possess less formal skills for assessing the knowledge, skills, capacities and interests of his students, in order to establish the pre-conditions for learning and the more formal assessment of learning. In their own experience in education, teachers have proceeded from one age group to another, without much contact with younger age groups, so that most have lost any sense of the type and quality of school work younger people are capable of performing. Typically, new teachers either overestimate or underestimate the capacities of their students, and fail to set progressive standards based upon performance. Practice should

include a conscious examination of the variation in productivity, the interest, the range of experience, and the thought processes which students bring to school tasks. A positive orientation toward the products of instruction must be developed: "Where do the students stand now, and what are the next steps in their development?", rather than the negative, pessimistic, and blaming attitude so frequently heard, "Why these students can't even write (read, think)! What have they been doing all these years?"

e. *The strategy and tactics of maintaining order.* Novice teachers frequently have ambivalent attitudes about authority and their role in exercising it. Students, on the other hand, consistently test the limits of permissible behavior. Novice teachers frequently display reactive behavior (personal affront, excessive displays of temper, extreme authoritarian stance) in these situations. A conscious sense of the employment of strategy and tactics is required, and the teacher must know what actions and tools he has at his command under varying conditions. Through practice, he may achieve an understanding of the situations likely to arise, methods of control congenial to his personality, and resources available in the school. Some important ingredients of strategy and tactics are: the control of voice, manner, and feelings; the maintenance of impersonal methods of appeal and control; the capacity under stress to observe a wide range of behavior and fix responsibility with fairness; tolerance of constructive, though apparently disorderly, behavior; command of a wide range of individual work techniques and flexibility in using them, when disorder occurs, to put students to work at individual tasks for which they are responsible; explicit techniques for establishing the limits of classroom behavior and techniques for reaching agreement with students concerning these limits.

### 3. *Practice in the Organization of Instruction.*

In the previous sections I have discussed certain basic ways of analyzing and understanding teaching behavior and certain basic pre-conditions which must be established if teaching is to take place. It is my view that only as these factors in teaching become almost completely routinized, automatic and natural that the energy of the teacher is released for the basic tasks of instruction.

At this point, I wish to consider certain problems related to the selection, organization, and evaluation of the materials of instruction. I shall discuss this topic under four headings: (a) the academic background and style of thought of the novice teacher; (b) the setting of objectives and the selection of content; (c) the "psychologizing of the curriculum"; and (d) the evaluation of instruction.

(a) *The academic background and style of thought of the novice teacher.* Many people assume that the liberal arts college graduate, with a good preparation in one or more major subjects, is ready to determine the objectives of instruction and to select the appropriate subject content, or that he can

learn to do this quickly and easily as an apprentice to a competent classroom teacher. This assumption ignores at least four handicaps under which most novices begin their teaching careers.

First, many novice teachers, who have qualitatively superior academic backgrounds, have serious deficiencies in their substantive preparation for teaching on the pre-collegiate level. Students who have majored in English, for example, have seldom studied composition seriously, and their last experience in this area may have been a distasteful one during the Freshman year. Others may have huge gaps, such as absence of training in Shakespeare or American Literature. Few have examined critically the literature currently taught in the schools; even fewer have thought seriously about the appropriateness for the secondary schools of the literature or literary and critical techniques they have studied in their college courses. The probability is even less that they have considered the aims of liberal or general education within the field of English, or the special techniques required to deal with students who are unable to read or spell.

These gaps are not the fault of the college program: we cannot expect scholars in multipurpose institutions to slant their courses or their major requirements toward the problems of the lower schools. Such work is properly the task of the scholar-teacher who should be a key contributor to the teacher-training program. It is he who should advise students concerning appropriate academic study for teaching in secondary and elementary schools; who in his courses should direct the attention of students to problems of the sort mentioned in the preceding paragraph; who should assist in the preparation of similar specialists for employment by the schools; and who should cooperate with these specialists in the supervision of novice teachers. I use the term, "scholar-teacher," to indicate that most well-regarded teachers are not scholars and are not well-trained or versatile enough to guide the major part of the preparation of novice teachers of high ability. Effective scholar-teachers are in short supply in many fields; to me, this is one of the most critical personnel shortages we face.

Second, the curriculum resources in the average school used as a training ground are extremely limited. The curriculum guide in most schools is at best a skeletal affair, offering wide possibilities of choice and private decision, containing only the broadest and most general statements of objectives, and practically nothing in the way of specific suggestions for materials and procedures. In many cases, textbooks are chosen for the teacher and standard departmental examinations demand that students master the texts, but even in such cases the amount of prescriptive behavior demanded of the teacher consumes only a small proportion of classroom time available. The novice is thrown immediately upon his own resources, with limited library facilities and practically no accumulated departmental materials.

The training program should introduce the novice teacher to a wide range

of curriculum designs, reading material, audio-visual supplements, texts, and other resources, and encourage him to make a critical appraisal and selection of such material for specific purposes. Practice provides the opportunity for application of this training, through induction into one or more schools, each with limited scope and purposes.

Third, novice teachers have widely varying attitudes and aptitudes for the organization of their work. A liberal education does not by any means guarantee organized, systematic thinking and planning. Some novice teachers assume that they command, at their finger tips, the full range of information and knowledge encountered in their own education, and find to their distress that words, ideas, and information do not respond to command performance so readily—that systematic review, restudy, and reorganization are required in the present. Others resent organization, think of teaching as an entirely aesthetic and creative experience, reject control of any kind, and defend themselves by taking extreme positions on the "autonomy" of the teacher and the "privacy" of the classroom. In general, the novice tends to underestimate the necessity of organization and planning and the difficulties of attaining precision of language and thought under classroom teaching conditions. Much of the boredom so characteristic of our classrooms is the result of inadequate planning and preparation of tasks of progressive difficulty so that the limited backgrounds and personal idiosyncrasies of the teacher hold sway with repetitive monotony.

Fourth, the recent experience of most liberal arts college graduates is remote from the experience of their younger students. Our youth society, and our schools and colleges, are rigidly age-graded, and the gaps between the age groups must be closed if the novice teacher is to organize his instruction in ways which will interest, motivate, and be within the competence and experience of his students. Some novice teachers have natural gifts and a wide range of experience with younger people, but a majority are all too quick to categorize the behavior of their students in moralistic ways, to misinterpret this behavior, and to develop ways of dealing with students which widen the age-separation to the detriment of learning.

On these grounds, academic instruction and practice in teacher education must include further study in the student's field in order to fill in deficiencies of past preparation for school teaching; restudy and reorganization of the academic field consistent with the aims of the school and of general or liberal education as well as the aims of specialization; analysis of available materials toward the end of developing critical judgment; and training in the systematic organization of content and method required by school conditions.

(b) *The setting of objectives and the selection of content.* One of the aims of practice in the setting of objectives and the selection of content is to establish in the teacher the habit of justification. We hope to teach him constantly to ask and to attempt to answer questions such as: "Why did I

select this content as a vehicle for instruction?" and "What are the aims of education which can be accomplished within the boundaries of my special field?"

I conceive of the process of setting objectives and selecting content as involving choices among a number of aims: those of developing mastery of the tools of learning, such as reading, spelling, handling quantitative concepts and so forth; those of general or liberal education, including the learning of material which the culture defines as "education," and the basic elements of the humanistic democratic traditions; and those dictated by specialization and the characteristics of discrete fields of knowledge.

A relatively unsophisticated example of this process of interaction and choice of emphasis among aims may make this point clearer. Let us examine a few of the ways we might treat the subject of four of America's cultural heroes: Washington, Jefferson, Jackson and Lincoln, and their contributions to our humanistic and democratic ideals. If our aim is nationalistic, we might present the popular image and mythology of these individuals: Washington as a man of great character, the "father of his country," a figure of truth and integrity, a force for balance and unity; Lincoln as the great leader in maintaining the Union; Jackson as the tough, plain-spoken, fearless common man, the great egalitarian. If our aim is to impart knowledge which the culture considers imperative for every "educated" person to know, we might discuss Washington in relation to *The Farewell Address*, Jefferson in relation to *The Declaration of Independence*, and Lincoln in relation to *The Gettysburg Address*, perhaps requiring the students to memorize part or all of these and other documents. If our aim is humanistic we might discuss the basic concepts which these heroes exemplify: Jefferson and the rights of man; Jackson and equality of opportunity; Lincoln and the equality of all men, and as an example of humanity and compassion in time of trial and conflict. If our aims are historical, the treatment must become more analytic, and less value-laden; we shall be concerned with a variety of sources, the historical context of the times of each man, and we may be concerned with laying a foundation for a later, more intensive study of history. In each case we will have the aim of making sure that the students are capable of handling the materials we assign, though the emphasis on the teaching and practice of the necessary skills may vary.

One of the most difficult obstacles which the novice teacher must overcome is his own tendency to establish aims which are so general, diffuse, and abstract that they bear little relation to the behavior which a teacher may really expect to observe from the student. The behavior expected of the student is likely not to be made explicit to him, and required tasks may bear little relation to the expected behavior. In this situation the student typically attempts to memorize everything, and rarely attains insight into the learning which the teacher really hopes to establish. A significant aspect of practice, then, is the

formulation of aims in specific, concrete terms which are amenable to translation into operations to be performed by the student.

Another practical difficulty of novice teachers is that much of their teaching has the characteristics of a "one day stand"; that is, well worked out daily lessons, each a whole unto itself, unrelated to what comes before or after, with little consistent sequential purpose. A number of factors contribute to this, but most fundamental is the lack of a sense of the pace of learning, of a feeling for the need for repetition and instruction over periods of time and in a variety of contexts. The instructor who acknowledges the importance of pace and repetition is forced to devise long-term strategies, commonly called "units," with discrete sub-goals for daily lessons which fit into and contribute to major goals. Though the typical liberal arts college graduate tends to resist the idea of written lesson plans and of establishing goals in detailed and behavioral form, there seems to be no alternative to this kind of practice as a way of forcing him to perform the kind of planning, organization, and thinking required in teaching.

(c) *The "psychologizing of the curriculum," by which I mean to indicate the application of methods and techniques appropriate for the objectives and content of instruction and for the characteristics of the students specifically involved.* Here the problem of justification takes a new focus: "Why did you do it that way?"; "Was this the best way to proceed, given these objectives, this body of knowledge, and these students?"

Implicit in the phrasing of these questions is the belief that specific methods and techniques of teaching proceed from specific objectives and content. The essence of teaching is instruction in something. It follows from this that I am suspicious of any point of view in which methods or techniques dictate content. An example of such a position is that held by proponents of "the democratic classroom" or "democratic process in teaching," which leads to the absurdity of the students "developing their own curriculum."

Perhaps the first question a teacher should ask in deciding upon a mode of presentation is: "Do the particular aims and content I have selected dictate or suggest methods and techniques of teaching which will be particularly appropriate?" If the purpose is to have the student learn certain information to provide a firm factual basis for later discussion and analysis, a variety of information-giving techniques is suggested, such as lecture-reading-test and assign-recite-test, each of which requires that the material be organized and presented in a systematic way, and that the students be checked to see that they have covered and learned the material so that a common basis for proceeding exists. If the purpose of the lesson is to illustrate a type of problem and ways of solving it, the aim and content dictate that the lesson include applications of the process to be performed by the student.

In deciding upon a mode of presentation, the teacher must at points give attention to the question: "Is this method appropriate for the characteristics

of my students?" Dewey called this strategy "the psychologizing of the curriculum," by which he meant the adaptation of aims, content and methods to the psychological characteristics of the students. Every point of the lesson must be justified in these terms, and in order to answer this question completely the teacher must carry out an enormous amount of planning and pre-testing of the students. I again suggest that the lesson be firmly embedded in a behavioral analysis of the students; that its aims and tasks be related directly to expected behavioral goals, and that these goals be within the capacities of the students. In addition, and salient, the students have some sense of the direction and objectives of the lesson; interest-building, motivating, and directional elements must be built into the lesson at all stages. In practice, the performance of the novice must be checked continuously: "What evidence do you have of student interest and motivation?"; "To what extent have they made your purposes their own?"

I cannot, in this memorandum, catalogue and discuss the wide variety of specific methods and techniques of teaching with which novice teachers should become familiar in practice. I would like to point out one difficulty which many novice teachers face in their early teaching experience. Novice teachers often attempt to employ what they feel to be sophisticated techniques, particularly those requiring extensive participation or unusual stimuli and individual expression, before they have established what I have called the "preconditions for teaching." In so doing, they may create disciplinary problems for themselves. Certain techniques, particularly those which allow the teacher to survey the behavior of all of the students simultaneously (lecture, assign-recite), or which require classroom work with individual responsibility (work assignments, tests), are more useful in establishing conditions of order. The difficulty is that the teacher may confuse this order and regularity with good teaching, which it may or may not be, and plan all lessons to these methods, irrespective of aims, content, or students. One of the basic purposes of practice under supervision is to dispel this confusion and to demand a consistent justification of methods and techniques.

(d) *The evaluation of instruction.* A major handicap of the teaching profession is the selection into teaching, by the culture, of non-quantitatively oriented people. We all know of the difficulties of recruiting teachers of mathematics and science, but not so well-publicized is the real distaste for and fear of quantitative and mathematical analysis which characterizes a vast majority of our elementary and secondary school teachers. Partly this is due to the feminization of the teaching staff of the lower schools; it is well known that girls at all levels of schooling respond less well than boys to mathematical and scientific training and subtly communicate their reservations when they become teachers. It is also due to the fact that students with mathematical and scientific aptitude are attracted to other occupations at all levels of our educational system. As a result, most graduates of liberal arts colleges coming

into teaching pride themselves in their humanistic, non-quantitative, non-behavioral, aesthetic values. Courses in educational psychology, measurement and statistics, and educational research are characteristically disliked at the outset, before the instructors make their contributions by massacre.

Yet the teacher must justify instruction by constantly asking the question: "To what extent did I accomplish my aims in terms of the learning of the students?" This question is a technical one of measurement and evaluation, which requires skill, training and orientation far beyond the bounds of common sense.

Novice teachers have difficulty when they assign grades because they fail to distinguish adequately between measurement of progress and measurement of degree to which students meet certain standards, relative or absolute. The former type, that of progress, requires a pretest-posttest model of evaluation which allows individual assessment of the student over a given time. The latter type requires a scale on which to measure the degree which students meet certain standards. The former is geared to the status of the individual; the latter is often geared to absolute notions, the upper limits of learning, or a distribution from which relative standing can be determined. The uses of the two types of measurement are often very different: the former is a way of rewarding students and deciding upon the next steps for learning; the latter is a means of rating to rate students relative to one another or against an absolute standard for purposes of making recommendations and judgments. Typically, as grades are given, these purposes and uses are confused, and proper distinctions are not made.

It is almost axiomatic in teaching that the more important the objectives, the more difficult it is to measure the achievement of them. It is easiest to measure immediate recall of information or the development of manipulative skills, more difficult to measure changes of attitudes and underlying values, perhaps most difficult to measure the basic processes of learning, the capacity to think, the process of inquiry. Often the behavior we seek can only be tested in other contexts than the classroom, after long time delays, and is beyond the capacity of the teacher to know. If the teacher is to make even a tentative approach to these problems of measurement he must have some notions of the meaning of reliability and validity of measurement, error of measurement, elementary statistical distributions and tests of significance. One of the greatest weaknesses of our present arrangements of practice is the lack of co-ordination between collegiate instruction in measurement and evaluation and the practice of these principles in the classroom.

### C. NOTES ON "THE ART OF TEACHING"

The profession of teaching, which lies close to the heart of the layman in America, has a peculiar problem: namely, that all attempts to define the

special knowledge and competencies of the teacher, and the training necessary to develop them, meet with strong opposition from a vocal but powerful minority who invoke the concept of "the art of teaching," and by their arguments attempt to put teaching beyond the pale of rational thought, analysis and science. These arguments, in their extreme form, would dismiss most of the discussion undertaken in this article by such statements as "Teaching is an art. You are born with it; you either have it or you don't. If you have the talent, you don't need any of this training; if you don't have it, the training is useless anyway. If you have the art, all other elements of teaching are merely common sense." I realize that I have created a "straw man" for purposes of argument, but the attitudes with which I intend to take issue are invoked so frequently and so emotionally whenever training in teaching is discussed that I am compelled to deal with them.

#### 1. *Basic elements of the position that "teaching is an art."*

Proponents of "the art of teaching" concept tend to take an essentially Aristotelian approach in their assumption of opposites, of an either-or position. The usual opposite invoked is the "science of teaching"; teaching is either an art or a science, but not both. Teaching thus is seen as a unitary act, the elements of which are inseparable and organized in a highly personal, creative way. The argument is impregnable, from a logical point of view, because it is essentially non-rational; it presents the teacher as actor, and emphasizes the dramatic, sensational, aesthetic, and idiosyncratic aspects of teaching, to the relative exclusion of the acts required of the student, and process of learning. Ignored, then, are many of the difficult and often routine aspects of teaching, such as reinforcement of learning, management of stress in teaching, and the deeply intellectual requirements of the selection of content. Rarely is the fundamental criterion of teaching, the learning of pupils, considered. The assumption is made that the artistic act itself will be enough to motivate and instruct the students.

The argument also enshrouds teaching with a certain "mystique," with the concept that one has a "call" to teaching and that one will receive the call, if he has the talent. This seems to be an attempt to set teaching apart and to dignify it on mystical grounds; teachers become a group with God-given powers and their work is an act of creative inspiration which is not subject to external analysis, and which develops and improves naturally, with maturity and exercise.

And finally, the argument seems to me to be reactionary. On the one hand it is a reaction against possible intrusion on those already in teaching; on the other, against those who would prevent entry into the profession of the untrained person who believes that the sincerity of his aspirations is qualification enough. Those already in teaching tend to reject demands that they justify their teaching methods and content, that they continue to learn and improve, that they be able to communicate their skills and knowledge to others, by

invoking the highest ideals of teaching and calling them "art." Those not in teaching who want entry for themselves or for others, for a variety of economic and political as well as idealistic reasons, invoke the "art of teaching" because they can claim that they or their candidates have it. The argument is defensive, a way of rationalizing the status quo of the individual in order to defeat new demands or expectations; frequently both idealists and scoundrels are found making the same argument despite their extremely different purposes.

## *2. An analysis of the analogy between teaching and art.*

The proponents of "teaching as art" argue by analogy, evoking images from the arts which compare the teacher with the artist, the musician, the writer, and others. In most cases, the analogy is false because of an oversimplification of the conditions which exist within the arts and of the way in which artistic talent is developed and recognized.

The supply of recognized artists in all fields is relatively limited—the artist is a rare person, and for each recognized artist there is a large supporting cast of people engaged in the pursuit of the art and the development of artistic talent who might more properly be called technicians and craftsmen. For example, for each musician labeled "artist," there are literally thousands of musical performers, thousands of musical organizations and thousands of music teachers. Few of these performers achieve the status of "artist," though working in the art. The argument by analogy evokes images of the highest talent, ignoring the vast corps of technically qualified performers who form the broad base upon which the art depends in order to flourish and to develop new talent. Teaching, too, has relatively few highly talented "artists," and the great bulk of teaching must be done by individuals who develop technical competence and craftsmanship, who perform in the "art" but are not recognized as artists. To talk of teaching exclusively as an "art" is pretentious, setting up demands which the majority cannot achieve and denying recognition to those who are competent but not "talented."

Within the arts, recognition as an artist in one area of specialization does not entitle the artist to recognition in other related areas. For example, the concert pianist is not simultaneously granted recognition as conductor, composer, music critic, music historian, or even piano teacher. Each status must be earned in terms of the talent and skill required for that particular specialty. Teaching also is made up of many aspects, each requiring its own specialization: knowledge of subject, selection of content, interaction with students, the learning process, etc. Talent and specialization in one or another aspect of teaching, as in art, does not grant one recognition in, nor exemption from, the other important aspects of teaching. Argument by analogy between art and teaching cannot ignore the varieties of specialization.

The teleological concept of artistic talent—as the natural unfolding of inborn talent—does not stand up when the development of the artist is considered carefully. In almost all forms of art, the artist is developed by

conscious, deliberate training, with study under the most competent teachers available. Training is not restricted to study under one master, nor to only the manipulative aspects of the art. Theoretical study is undertaken, as well as the most meticulous attention to detail and to practice, and the student moves on to more renowned teachers or "masters" as his own talent develops and begins to exceed the talents of his original teacher. To argue, from the "artistic" analogy, that all one needs to be a teacher is knowledge of the subject and natural teaching talent is to ignore the reality of training in the arts.

The notion that since "teaching is an art" there should be no formal entry requirements, implying that such requirements do not exist in art, is to ignore the severe apprenticeship and competitions through which most artists go before gaining recognition. As the training of the artist continues, the opportunities for study and patronage become more and more competitive and selective. Numerous mechanisms of judgment, criticism, and selection exist, such as prizes, scholarships, "shows," recitals, try-outs, and exhibitions. Of crucial importance in these competitions are the opinions of experts and critics, not just popular response.

### 3. *A statement of position on the "artistic" elements of teaching.*

Elsewhere in this paper I have recognized that individuals vary greatly in their talents for teaching, that teaching calls into play the total personality and may be a highly personal and creative experience, and that there is an opportunity in teaching for wide variations in idiosyncratic styles. There are also many aspects of teaching which provide opportunities for the application of specialized ability and talent. When the expression of talent is observed, much of it seems personal, intuitive, and creative. We may despair of trying to teach others to be this way. Many gifted teachers and specialists are unable to analyze and describe their own behavior to explain to others what they are doing.

It is a characteristic of specialized ability and talent that it does not encompass the totality of teaching, though it may provide a focus around which the rest of the teaching process is organized. The "total artist" implied by the artistic analogy is imaginary. Teachers who have real talent in one or another direction may be merely competent or even have a disability in other aspects of teaching. The dramatic teacher, for example, may be a novice when he approaches the evaluation of the progress of his students, or he may have poor judgment in the selection of content. The content enthusiast may have little skill in the interplay between teacher and students. I have already indicated the range of complexity of the process of teaching. Artistry in one phase of teaching, then, should not exempt a teacher from a study and practice in other essential aspects of teaching.

I prefer to think of these traits and talents as *developed* abilities, rather than as intuitive and mystical "art." They are specialized abilities applied and

developed in the context of teaching. They should be subjected to the same kinds of conscious analysis, self-disciplined control and practice, and external criticism that is characteristic of the development of the artist in other fields. We should seek in the novice teacher special abilities and talents which are appropriate for teaching and strive to develop them. Even the talented teacher can improve; more important, he can try to communicate his skill to other teachers to help them to become technicians or craftsmen, if not "artists." It seems to me that special ability and talent provide that basis for specialization in teaching which is necessary if we are to set standards and influence the behavior of large numbers of teachers who have no specialized talent. In order to develop competent specialists, we need rational analysis of the teaching act and communication of this analysis in training. We will not be helped by the glorification of the intuitive and the personal.

#### D. SUGGESTIONS FOR THE ORGANIZATION OF PRACTICE

In this paper so far I have attempted to provide a justification for the inclusion of practice as a part of the training of a teacher, I have defined some of the primary types of practice, and I have provided an analysis of the "art of teaching." My argument has been based upon observations of the gross behavioral difficulties which the able, well-educated liberal arts student or graduate faces as he begins to teach under usual school conditions. I now wish to make certain specific suggestions for the organization of practice which proceed from the type of analysis I have been making.

1. *Practice should be continuous, beginning during the later years of academic study and continuing during the first years of teaching, and not be restricted to the year or so of enrollment in a teacher-training program.*

The basic situation in teacher education today may be viewed as one in which the college or university is primarily the producer of teachers, and the school is the consumer. The school treats the beginning teacher like a finished product, and tends to drop the adjective "beginning" when important policy decisions are made. Supervisors of beginning teachers and experienced colleagues tend to be judgmental rather than helpful: "Is he going to make a go of it?" rather than, "How can I help him to do a better job?" This "consumer" attitude on the part of the schools throws the whole of the job of training upon the college or university, while the real conflict between the interests of liberal and professional education prohibits the development of a comprehensive program of training. This conflict is particularly acute in the area of practice because of the excessive time requirements involved.

In view of the complex nature of the tasks of the teacher, the student at the end of the collegiate pre-service training period should be considered only an "apt apprentice." He should be viewed as one who has passed successfully through the first stages of training, whose study of education has been

initiated, and who has shown promise in his first efforts to apply his knowledge in practice.

2. *If practice is to be continuous during the first years of teaching, certain basic conditions in the schools must be adapted more closely to the needs of training.*

a. *The schools must accept more direct responsibility for the training of teachers.* If we look at the typical apprentice teaching arrangements, we find that the cooperating teachers are volunteers who are offered to the colleges by the schools without selective judgment regarding their competence to handle this additional responsibility. No adjustment is made in the load of the cooperating teacher, and the school supervisory staff does not accept any responsibility for the quality of the work of the cooperating teachers. The colleges become "beggars," pleading with schools to admit apprentices, and with teachers to take their charges seriously. The specialized task of supervision is not considered a part of the career of the cooperating teacher, who receives only token or no recognition and reward from either the school or the college.

The college is forced to establish its own supervisory staff, whose members have second rate status in the academic world because of their practical concerns and their temporary job incumbencies. Meetings between the college staff and the cooperating teachers are usually infrequent. There is little agreement concerning priority of purposes; for example, is the apprenticeship to include all aspects of the complex life of the teacher, including five or six classes, no time for planning, corridor and lunchroom assignments, and heavy clerical duties? Or is priority to be placed upon central teaching tasks? Finally, evaluation of apprentice teaching by both school and college personnel tends to be done on marginal time.

b. *Present supervisory arrangements in the schools are inadequate, and the work tends to be done by persons who are removed from teaching.* The novice teacher is essentially isolated from other teachers and has just as much responsibility as his more experienced colleagues. The basic organizational pattern of the school is that of a series of isolated classrooms, each with its teacher, responsible for "his" work under relatively autonomous conditions. Supervision is not handled by teachers who teach the same students and the same subject content, but by principals, supervisors and department heads who have "advanced" out of the classroom and customarily have so many teachers under their charge that they can hope only to carry out their obligations to evaluate new teachers for the purpose of tenure decisions. The whole idea of supervision is not well-received by many school personnel, novice and experienced; it is seen as a threat to the autonomy of the individual teacher, as an "invasion" of "his" classroom where he is "king."

c. *The highly specialized nature of supervision, and the skills and knowledge required, are little understood, or are disregarded, by the schools.*

Supervision, with helpful intent, requires an enormous amount of time. The supervisor must examine the plans of the novice to get a sense of the way he organizes his material, his intent, and his resources. A sufficient sample of teaching must be observed so that the supervisor can have a valid impression of the way in which the novice puts his plans into action. Then the supervisor must have time to discuss the teaching thoroughly with the novice, to provide critical analysis and thoughtful, constructive suggestions for improvement. These requirements are rarely met by the schools.

Elsewhere I have argued that teaching is an extremely complex process which requires a high degree of specialized knowledge and skill. Supervision requires the same knowledge and skill but at a more advanced level, and in addition requires special ability to influence the behavior of others in a desired direction. It is customary, in the selection of teachers for supervisory duties, to choose those who have the reputation for being "good" teachers. "Good" teaching is a necessary, but not sufficient criterion, for many excellent teachers have little skill or ability to analyze their own behavior or the behavior of others, to communicate this analysis, and to suggest changes which are consistent with the characteristics of the novice and the situation in which he is working.

d. *Special administrative arrangements must be developed in the schools to provide the specialized skills and facilities needed for the induction of novice teachers.* It is not enough to ask that the cooperating teachers have specialized skills, that supervision be done by those who remain in close contact with teaching, that sufficient time be allocated for the observation, analysis and evaluation of teaching, and that the teaching loads of novice teachers and supervisors be arranged with the purpose of training in mind. Each of these objectives can be, and frequently is, arranged on an individual, piecemeal basis—but only at the expenditure of great energy and personal charm and influence by a few distinguished workers. We must have a routine acceptance of the principles involved and routine arrangements in the schools to make this work a part of their normal functioning. The task of individual negotiations, with teachers, principals, supervisors, superintendents, and often parents, which now precedes any slight improvement in these directions is overwhelming; stable, long-term contractual relationships are necessary, with formal administrative arrangements in the schools, to carry on this work.

The new internship programs which have been initiated by a number of universities meet some of the conditions outlined above. However, the heavy responsibilities carried by interns make this system applicable only for the most able, mature, and best educated of candidates for teaching.

A further step has been taken with the introduction of teaching teams which include apprentices, interns, and beginning teachers. The team teaching organization seems to me to have particular value for the reception and induction of novice teachers. Joint planning of instruction becomes

possible, as does flexibility in the assignment of teachers to tasks suitable to their capabilities. Instead of being fully responsible from the start, there can be a gradual increase of responsibility under expert guidance. Within the team, teachers see each other at work, and join in the evaluation of instruction and learning under natural conditions where the objective is the improvement of instruction and not judgment of their own worth. Teachers with greater technical expertness are responsible for influencing the performance of their less expert colleagues. Talk about teaching becomes legitimate; it is based on common observation and not upon isolated personal experience. The team structure allows the school to identify those teachers who have greater knowledge and skill, to assign them greater responsibility, and to reward them for successful performance.

*3. Present arrangements for the "continuing" education of teachers and specialists are inadequate and must be radically redesigned to make them more effective.*

Probably no aspect of contemporary practice is less satisfactory than the education of teachers and specialists after they have joined the full-time staff of a school system. Much of the training is part-time and unrelated to the present or future needs of the individual on the job. It is usually provided by university staff and is given in the traditional classroom manner, even though the subject being taught may be more amenable to a "clinical" approach similar to that in programs for doctors and nurses in teaching hospitals. Nor does the school system often participate in the training of its personnel, since the usual salary structure provides an increase in pay only after an individual has completed a university or college "course."

a. *Universities must give increased attention to the development of programs of advanced study for novice and specialist teachers.* It is often hard if not impossible for teachers to find university instruction of appropriate character. Only a minority can attend a college or university full time during the regular academic year. Instruction in the late afternoon, evening, or summer is likely to be in operational subjects rather than the arts and sciences. The result is that teachers take "graduate" work which may not be of interest to them and which could probably be better taught on the job by the skilled staff of the school systems than by lecturers on a university staff.

Courses and programs in education offered by colleges and university tend to be of two kinds: those of an introductory nature offered to pre-service teachers, and those leading to specialization in one of the fields of education such as guidance, administration or research in educational psychology. The latter type seems to assume that the teacher desires to prepare for advancement out of the classroom. The novice teacher is thus forced to undertake premature specialization away from teaching, because these are the only courses available. The historic separation of education from the arts and sciences, and the highly specialized nature of graduate courses in the arts and sciences, make it

difficult for the universities and colleges to offer advanced work in the subject fields which are appropriate for teachers.

If we turn to programs designed to train the supervisors necessary if the school is to accept responsibility for the training of teachers, we find that work is almost wholly confined to courses in education. Further study in the subject fields is neglected. The aim seems to be to develop general supervisors, who will leave the classroom themselves, rather than special subject supervisors well versed in the substantive problems of a specific discipline who will remain in the classroom and make contributions to curriculum and to the training of novice teachers in the special subject. College professors who bridge the gap between the academic subject field and teaching in the lower schools are rare. Opportunities for clinical experiences, particularly formal, supervised internships, are also rare.

The Academic Year Institutes of the National Science Foundation and the teacher institutes of the Physical Science Study Committee and the John Hay Whitney Fellowship Program point the way, in part, for the redefinition of programs for both novice and career teachers. The basic intent of these programs is to improve the competence of the teacher in his subject field. Several, however, have swung completely away from the study of education. We need to develop programs which include both the applied aspects of training, with internships in the schools, as well as advanced academic study.

b. *There must be a thorough-going redefinition and reallocation of school and university roles in the training of teachers.*

In teacher education today the schools and universities are not performing the roles for which they are best fitted. The colleges and universities are charged with excessive responsibility, or have appropriated it, with a consequent proliferation of practical courses on matters which can better be handled in the schools. The schools have too little responsibility, though in each generation their capacity to discharge it, in terms of increasingly skilled personnel and improved facilities, has increased.

The university, by virtue of its concentration of specialized personnel, is best fitted to handle those functions which have a substantial theoretical, and not exclusively practical, application, and those in which extremely advanced and technical skills are required, as in the design, execution, and interpretation of research. The university is also best qualified to offer instruction in subjects which involve comparative analysis and judgment, such as the clarification of the aims of education and the comparative study of curricula offered in many schools. Finally, the university is best fitted to offer instruction in those academic disciplines which are represented in the lower schools' curricula, and in the behavioral sciences necessary to an understanding of the teaching-learning process.

The school is best fitted to contribute to the training of teachers in those areas where specific practical applications are required: the introduction of

the teacher to the facilities of the school, the administrative arrangements of the school, the clerical functions of the teacher, and the specific curriculum and the curriculum resources of the school. The school, because it is the setting for the novice's introductory experiences in teaching, is best fitted to handle instruction in a wide variety of practice situations, particularly those which I have discussed under the heading of "the pre-conditions of teaching." The school can fulfill a particularly useful role in training teachers to use the variety of mechanical aids to teaching now available. But to discharge these functions, the school must view its curriculum and personnel resources as available for training purposes as well as for the traditional end of education.

c. *Improvement of training programs for novice teachers requires the development of closer working relationships between schools and universities.*

In the preceding pages I have suggested a number of conditions which are required for the improvement of the education of teachers. Clearly, the realization of these suggestions requires a closer collaboration between schools and universities than has occurred so far in American education. There can be no "beggars" in this relationship. Firm, binding agreements are necessary, and the work can be achieved only if school and university personnel are related together functionally on a natural, day-to-day basis. Joint appointments are necessary so that the partners in the enterprise have ways of influencing the policies formed separately in each institution. Similar arrangements are necessary for the training of other school specialists, particularly in administration and guidance. First steps have been taken with the development of the School and University Program for Research and Development, involving Harvard University and neighboring school systems, the Wisconsin School Improvement Program, The University of Chicago School Improvement Program, and other similar ventures.

d. *Ways of allocating the costs of these programs must be developed which do not place undue hardship upon the universities, the schools, or the foundations.*

Almost all of the suggestions for the organization of practice which have been made in this memorandum involve increased costs, and the question is immediately raised: "Who shall bear these costs and why?"

The education of teachers is expensive, particularly the individualized parts such as practice. Expenses are particularly high for the student in a private college, and most training programs are deficit operations. The foundations cannot perpetually continue the expenditures they have made to start new programs.

Certainly some of the costs can and should be carried by the local school systems, and every effort should be made to shift this expenditure to the local school budget. I have in mind those developments which will improve the training of beginning teachers on the job, which will permit the further training of career teachers and specialists, and which will lead to organiza-

tional changes providing greater responsibility and remuneration for members of teaching staffs. Where internships are established which ensure substantial services to the schools, their costs (including intern salaries) can be a legitimate part of school budgets. Increased provision should also be made for sabbatical leaves with pay, at shorter intervals appropriate to the training needs of experienced career teachers, as programs are developed for them. On the other hand the university can share with the schools the cost of joint personnel, where there is a reduction of university expense as certain functions in training are shifted to the schools.

Two basic dilemmas remain, however: Who shall pay the expenses of students as the spiral of costs in higher education continues to rise?; and, Who shall pay a school system for the training costs of apprentices who do not plan to remain in that particular school system? The universities clearly cannot supply scholarships for a majority of future teachers; nor can the schools which are close to colleges and universities be expected to bear the burden of training for all school systems. Further, if a rational system of supplementary payments to cooperating teachers and supervisors is devised, an appreciable new expenditure will be added to school budgets. The present amount of one hundred dollars or so paid to cooperating teachers is ridiculous. If the conditions I suggest are met, the cost will be closer to one thousand dollars per apprentice.

The only hope I see, in the face of our present system of local control of schools, is federal and state subsidy of teachers in training, and of school systems which are engaged in training. Efforts at state and federal levels should be made to initiate programs to provide reasonable support for the training of teachers, as have been worked out in many other countries.

4. *The organization of practice should provide programs which are suited to the individual talents of the novice teacher.*

As a final note on the organization of practice, and in fear that the suggestions I have made so far will be interpreted as demanding highly structured practice arrangements, I wish to emphasize the individual "clinical" nature of the apprenticeship or internship, and the flexibility of organization which is required to provide this individual experience.

Throughout this paper I have emphasized the fact that able, well educated college graduates vary enormously in talents, knowledge, skill, and attitudes. In the face of this variation, practice arrangements *cannot* be routinized. The practice experience, within reasonable limits, should provide an opportunity for the novice to develop his special talents and to work on those areas in which he has little experience or ability. One of the dangers in practice is the elaboration of the obvious in areas where the novice is already competent—perhaps more competent than his supervisors.

Practice programs tend to be set up in certain patterns. For example, some programs require a great deal of systematic observation prior to any actual

teaching; others require the submission of detailed lesson and curriculum plans prior to teaching. Still others, such as the recently developed internship programs, throw the novice into positions of extreme responsibility almost immediately. I argue for an individual diagnosis of the practice needs of the novice, and the arrangement of practice to fit his particular stage of development. To be able to do this, the program must have a considerable control over practice arrangement. Some novice teachers are ready to accept responsibility; in fact, they demand it. Others need a gradual induction into teaching, with increases in responsibility as warranted by performance. The emphases of the practice program for the novice who has practically no background in psychology should be quite different from those for the novice with an extensive background in this field. Particular care should be taken not to assign novice and cooperating teacher together when personality conflicts are likely to occur, and to make changes quickly when serious conflicts do happen.

I realize that the kinds of decisions I am suggesting to guide the organization of practice for the individual demand great skill and mature judgment of a clinical nature in the leadership personnel of a program. Nevertheless, I feel that it is imperative to have this kind of individual orientation and flexibility if we are to work successfully for the improvement of the talent which the novice possesses as he enters teaching.

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# The McGuffey Readers and Moral Education

*Textbooks may be a reflection of the character and ideals of the society in which they are used. In this article, Rebecca H. Shankland studies some major themes from the McGuffey Readers and interprets these in relation to the life of the Middle Border—the American Midwest of the nineteenth century.*

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## INTRODUCTION

IN 1836 when William Holmes McGuffey signed a contract with a publisher in Cincinnati for a series of readers, he could not have foreseen either the phenomenal success of his little volumes or the extent to which they would become symbolic of the ideals of a particular society—the American Midwest of the nineteenth century. The man who wrote "George Craft is a very cruel boy. He is but six years old, and yet he is very wicked"<sup>1</sup> has become the subject of a book called *Making the American Mind*<sup>2</sup> and is credited by Hugh S. Fullerton with having "exerted the greatest influence, culturally, of any person in American history" from 1836 to 1900.<sup>3</sup>

<sup>1</sup> William H. McGuffey, *Newly Revised Eclectic First Reader* (Cincinnati, 1853). In this, as in all my other quotations from McGuffey, I have omitted syllabification, guides to pronunciation, and sentence numbering, since these devices tend to make McGuffey appear artificially antique.

<sup>2</sup> Richard D. Mosier, *Making the American Mind: Social and Moral Ideas in the McGuffey Readers* (New York, 1947), a book which incidentally not only overestimates McGuffey's individual influence, but also makes some highly questionable statements about McGuffey's beliefs.

<sup>3</sup> Preface to *Old Favorites from the McGuffey Readers*, ed. Harvey C. Minnich (New York, 1936), p. v.

What precisely is the relation of McGuffey's Readers to this society in which they flourished? Did they criticize it, idealize it, ignore it, lead it, follow it? If we can first examine the Readers and then analyze this nineteenth-century frontier world, perhaps we can draw some conclusions about the relationship between textbooks and society which will not be irrelevant to our own attempts to educate children.

### THE McGUFFEY READERS

The first series of McGuffey Readers consisted of a primer, a speller, and four readers.<sup>4</sup> McGuffey's brother, Alexander Hamilton McGuffey, was responsible for the speller, and later wrote a *Rhetorical Guide, or Fifth Reader* from which eventually the fifth and sixth readers in an expanded series were developed. But William Holmes McGuffey's influence remained paramount at least in the elementary texts, even though these were periodically revised throughout the nineteenth and early twentieth centuries.<sup>5</sup> We are here concerned with the principles of selection evident in the entire series of readers, from the one-syllabled stories of cats and boys to the ringing rhetoric of *Othello*. What ideals inform this whole series? What raises McGuffey from an individual to an institution?

Much of the material of the Readers is borrowed from contemporary juvenile readers and schoolbooks—in fact the first revision in 1838 was a consequence of charges of plagiarism from rival publishers.<sup>6</sup> McGuffey's material is typical of his time and was probably more engagingly presented than in previous readers. The children in McGuffey's stories are not confronted with artifical events but with everyday situations—a lame dog, a caged bird, a blind beggar, a broken window—and McGuffey makes every situation a dramatic one. Characters like Meddlesome Matty are such vivid personifications of human foibles that their names have become by-words. The appeal McGuffey made to the school children who read his stories is understandable; however, we are concerned with a different appeal—that which he made to his society as a whole.

In attempting to get at the heart of the assumptions which underlie the McGuffey Readers, we might first let McGuffey speak for himself. The preface to the *Second Reader* of 1857 says:

<sup>4</sup> I should like to thank Mrs. Lydia Hurd Smith, who wrote her doctoral dissertation on American children's readers, for her extensive assistance, particularly in bibliographical problems.

<sup>5</sup> The standard histories of the Readers are Harvey C. Minnich, "William Holmes McGuffey and the Peerless Pioneer McGuffey Readers," *Miami University Bulletin*, XXVI (1928); Henry H. Vail, *A History of the McGuffey Readers* (Cleveland, 1910); and Alice McGuffey Ruggles, *The Story of the McGuffeys* (New York, 1950).

<sup>6</sup> Plagiarism was a standard technique for textbook compiling—the lawsuit was not an attack on McGuffey's honesty but an attempt to limit the distribution of his very appealing texts.

It has been made an important object to append valuable instruction, and to exercise a healthy moral influence upon the mind of the learner.

In several editions the publisher advertises that "pure moral and religious sentiment" will be "inculcated in interesting and instructive lessons." A glance at the exceptionally popular moral tales for children<sup>7</sup> from which McGuffey took many of his stories will show that moral instruction was the convention of the day and that McGuffey's Readers were popular not because they were new and different but because they epitomized current conceptions of education. The crucial issue for us is the nature of the moral instruction McGuffey provides, and for this we must turn to the Readers themselves.

A typical example, from the *First Reader* of 1853, is called "Good Sense and Pride":

Ann had a new dress, of which she thought much more, than a good girl ought to have done. She was so proud of it, that she could not think of her books; and off she went to Grace, to show her new clothes.

... Grace ran to meet Ann with a smile, and said, "I am quite glad you are come, for my rose-bush is in bloom, and you shall have the best flower on it."

"Thank you," said Ann, as she looked at her dress; "but this sleeve hurts my arm; do you think it quite fits me?"

"I should think not, if it hurts you," said Grace, "and, if you please, you can take it off, and I will lend you one of mine while you stay."

Grace meant this as she said it. She did not think that Ann had spoken of the tight sleeve, only that she should praise the dress.

"What ails you, Ann?" said Grace, "you look as though you could cry. If the frock hurts you, you shall not keep it on; come, let us change it."

"Oh! Grace," said Ann, as the tears fell fast from her eyes, "it is not the frock that hurts me, but my *pride*. But I will tell you all my faults, and will try to be as good and as kind as you are, for the time to come."

Ann kept her word; and though she found it a hard thing, at first, to give up her love of dress, yet *good sense*, at last taught her that the sure way to be happy was to be good.

How did Ann feel about her new dress? What was it that made her weep? What is the sure way to be happy?

Although Ann is almost an allegorical representation of Pride, she is not merely a stick figure. Her subtle attempt to turn the conversation to herself

<sup>7</sup> F. J. Harvey Darton, *Children's Books in England*, 2nd ed. (Cambridge, Eng., 1958), pp. 158-181. See also Ralph L. Rusk's bibliography of schoolbooks up to 1840, in volume two of *Literature of the Middle Western Frontier* (New York, 1925), pp. 329-340.

and her new dress shows skillful characterization, but immediately thereafter we notice an abrupt transition to a ludicrous admission of guilt. Adult vocabulary suddenly appears in Ann's speech ("But I will tell you all my faults") and the didactic element completely dominates both plot and character. The concluding queries rub in the moral lesson by asking, "What is the sure way to be happy?" The child is encouraged to find the answer verbatim in the text, avoiding independent reflection which might produce a more spontaneous and natural answer such as, "The sure way to be happy is to have a new dress."

The governing purpose of the Readers is evident not only in stories about children, but also in animal fables:

The ducks must love their mother, and do all that she would have them do. And I dare say they will do so, for God has made them know that they must.

*(First Reader, 1848)*

The school becomes a moral battleground in the frequent stories about dunces:

O, what a sad, sad sight is this! A boy with a dunce-cap on his head! . . . He is a bad boy. He talks and laughs in school. He loves to be idle, and does not learn his lesson.

Does he not look bad? All the good boys shun him!

Do you think a good boy can love a bad one? Can his teacher love him?

I think not. No one loves a bad boy. No one can love those who are bad.

*(First Reader, 1863)*

Boys who are misled from the path to school by idle wicked boys drown, and little girls who insist on tasting everything have the skin taken off their lips by a mysterious potion. Children who disobey walk to their doom:

I once knew of a little girl who was told not to cross the street before a carriage. But she would not stop; and when the carriage came up, it ran directly over her.

*(First Reader, 1853)*

The moral universe is dramatized in black and white terms, presumably so that the unsophisticated mind of a child will be able to understand its significance.

The more advanced readers consist of literary selections which are often chosen for their moral significance. A selection from *Othello* is titled "The Folly of Intoxication" (*New Sixth Reader, 1857*). The *New High School Reader* of 1857 explains that in spite of Byron's "intellectual power and

poetic talent of the highest order, his entire want of moral and religious principle will consign him to an oblivion...." The introduction to Poe's "Raven" also assumes that artistic greatness and moral integrity may be mutually contradictory:

In this poem, one of the most beautiful, in style and poetic fancy, that Poe has written, the *Raven* is supposed to represent *despair*. Poe was a dissipated man and morbidly sensitive. This poem is contained in the "New Sixth Reader" of this series, but is introduced here, for the sake of connecting it with its most admirable and triumphant reply in the succeeding exercise.

The succeeding exercise, Miss Townsend's "Dove," substitutes "God is love" for Poe's "Nevermore." In this, as in the other examples, McGuffey lets no page turn without assuring his reader of the power of virtue. Good must always triumph over evil explicitly.

Lest McGuffey appear exceptionally severe, we should recognize how conventional this emphasis on moral instruction was. Sarah Trimmer, writing not long before the first McGuffey Readers appeared, excused the inconsistency of having an American bird appear in an English garden: "A mock-bird is properly a native of America, but is introduced here for the sake of the moral."<sup>8</sup> The report of a Massachusetts Teachers' Association committee in 1888 said:

Many a man owes a large measure of his success to some inspiring novel or essay, which first gave life to his feeble aspirations, and has exerted a healthful and elevating influence over his whole being.<sup>9</sup>

It is in just these terms that McGuffey has been praised by Henry Ford, Henry H. Vail, and writers of articles which abound in popular and educational journals. Mark Sullivan's *Our Times*, a study of America from 1900 to 1925, devotes a whole chapter to McGuffey, who receives tributes from an array of public figures who acknowledge his "blessed lessons in virtue and righteousness."<sup>10</sup>

Why, a twentieth-century reader wonders, were McGuffey's "blessed lessons in virtue" so crucial? We enjoy McGuffey for his ability to transform a commonplace situation into a dramatic event and for his vivid characterizations of Meddlesome Matties and Lazy Neds, not for his impossible fairyland of children who are instantly destroyed for crossing the street and instantly rewarded for confessing to breaking a window. But apparently to the society

<sup>8</sup> Quoted by Darton, p. 161.

<sup>9</sup> *English in the Secondary Schools. Report of a Committee of the Massachusetts Teachers' Association* (Syracuse, 1888), p. 5.

<sup>10</sup> Sullivan, pp. 10-16.

of his own age McGuffey's ability to point a moral was his most important quality, and in order to discover why this should be so we must examine the milieu of the Readers.

#### THE HISTORICAL SETTING OF THE McGUFFEY READERS

The McGuffey Readers flourished in the so-called Middle Border society, centering on Ohio, Indiana, Illinois, Missouri, Michigan, Minnesota, Wisconsin, and Iowa.<sup>11</sup> This was a land of backwoods settlements which followed the first wave of pioneers to the frontier. Crude and isolated, the Middle Border was not yet "civilization" in the usual sense of the word. According to the sources we have, it is probably safe to say that the McGuffey Readers were dominant in most of the common schools of this region for at least sixty years, from 1840 to 1900.

The Middle Border was by no means a land of sweetness and light; popular books of travelers stressed the roughness of frontier life. William Faux in 1823 wrote that he left Louisville "well pleased to turn my back on all the spitting, gouging, dirking, duelling, swearing," and in Indiana he found himself "quite out of society; every thing and every body, with some few exceptions, looks wild and half savage.... The moral sense seems to have no existence...."<sup>12</sup>

In an environment such as this, the role of the school was clearly defined—it was to bring civilization to this emerging, still unfinished society. Hamlin Garland, in *A Son of the Middle Border*, describes his school days in just this way:

Our readers were almost the only counterchecks to the current of vulgarity and baseness which ran through the talk of the older boys, and I wish to acknowledge my deep obligation to Professor McGuffey, whoever he may have been, for the dignity and literary grace of his selections. From the pages of his readers I learned to know and love the poems of Scott, Byron, Southey, Wordsworth and a long line of the English masters. I got my first taste of Shakespeare from the selected scenes which I read in these books.<sup>13</sup>

We might notice here that Garland's respect for McGuffey is based on the "dignity and literary grace of his selections," not on his moral tales. Herbert Quick was grateful to McGuffey because "on those farms a boy or girl with my appetite for literature was a frog in a desert."<sup>14</sup> Garland's mature concept

<sup>11</sup> The McGuffey Readers probably had very little influence in New England (Sullivan, p. 18 and Minnich, p. 15).

<sup>12</sup> Quoted by Rusk, pp. 107-08. Rusk, pp. 98-130, summarizes the reactions of many other travelers to the Middle Border. Lewis Atherton's *Main Street on the Middle Border* (Bloomington, 1954) has an illuminating chapter on small-town morality, pp. 65-108.

<sup>13</sup> New York, 1941, p. 112.

<sup>14</sup> Quoted by Sullivan, p. 14.

of literature was clearly at odds with McGuffey's—his literary taste was formed by Poe and Hawthorne, "whose visions comprehended the half-lights, the borderlands, of the human soul."<sup>15</sup> Garland's portrait of the Middle Border is tough and realistic, vastly different from the polite world that McGuffey paints.

Probably the greatest chronicler of the Middle Border is Mark Twain. Born in 1835, Twain grew up during the time when the McGuffey Readers were first used. *Huckleberry Finn* describes the time of Twain's childhood, from 1835 to 1845.<sup>16</sup> Huck Finn, who could be the prototype of McGuffey's idle boys, travels innocently through Midwestern America, uncovering in incident after incident the injustice and hypocrisy of this "civilization." Philip Young has suggested that the preponderance of violent episodes in *Huckleberry Finn* is a direct product of Twain's own experience:

Life on the Mississippi around 1845 could be gory: Twain based the novel largely on experiences he himself had undergone as a boy or had known intimately of, and had never quite got over. . . . These facts help explain what might otherwise seem a very curious thing: that with no exceptions but the rather irrelevant Tom Sawyer scenes at the beginning and end of *Huckleberry Finn*, every major episode in the novel ends in violence, in physical brutality, and usually in death. All along the way, what is more, there is bloodshed and pain.<sup>17</sup>

Thus we see in *Huckleberry Finn*, as Twain saw in the actual life of Hannibal, Missouri, rascallions who make their living off human gullibility, and we encounter the cruelty of slavery, murder, lynching, and blood feud. More important, we very rarely see a just settlement of any of these incidents—while the innocent suffer, conventional society looks on, unmoved.

Twain is concerned not only with exposing the violence of this society, but also with satirizing the kind of sentimentality that is blind to these human problems. The people who retreat from the injustice of life into an idealized world are symbolized by little Emmeline Grangerford who draws pictures that give Huck the "fantods." One of these portrays

a young lady with her hair all combed up straight to the top of her head, and knotted there in front of a comb like a chair-back, and she was crying into a handkerchief and had a dead bird laying on its back in her other hand with its heels up, and underneath the picture it said "I Shall Never Hear Thy Sweet Chirrup More Alas."<sup>18</sup>

<sup>15</sup> Garland, p. 219.

<sup>16</sup> This we know from Twain's title: *The Adventures of Huckleberry Finn. Scene: the Mississippi Valley. Time: Forty to Fifty Years Ago* (New York, 1906). The book was originally published in 1884 in England and 1885 in America.

<sup>17</sup> Philip Young, *Ernest Hemingway* (New York, 1952), p. 194 and p. 196.

<sup>18</sup> Twain, p. 142.

Emmeline's mawkish but socially approved sentiment contrasts sharply with the genuine but socially unrecognized tragedy of Nigger Jim's separation from his family.

McGuffey's *First Reader* of 1857 provides us with a graphic reminder that Twain's satire of sentimentality was not at all far-fetched: the frontispiece shows two small children sadly observing what can only be described in Huckleberry Finn's matter-of-fact language as a "dead bird laying on its back with its heels up." Twain's satire leads one to wonder whether McGuffey's Readers were perhaps perpetuating a concept of morality which was as hollow and unrealistic as Emmeline Grangerford's stereotyped morality. Another example from *Huckleberry Finn* ironically emphasizes the contrast between the conventional ideal and the actual reality in this (or any other) society:

Then Miss Watson she took me in the closet and prayed, but nothing come of it. She told me to pray every day, and whatever I asked for I would get it. But it warn't so. I tried it. Once I got a fish-line, but no hooks. It warn't any good to me without hooks. I tried for the hooks three or four times, but somehow I couldn't make it work. . . .

I set down one time back in the woods, and had a long think about it. I says to myself, if a body can get anything they pray for, why don't Deacon Winn get back the money he lost on pork? Why can't the widow get back her silver snuffbox that was stole? Why can't Miss Watson fat up? No, says I to myself, there ain't nothing in it.<sup>19</sup>

Contrast this with a typical story from the *First Reader* of 1853:

Mary and Martha were two sisters, who dwelt in a village near the sea. . . . Their parents were both dead, and their brother John was far away at sea.

They worked hard with their needles, and prayed God to protect them, and to bless their labor. They never missed going to church, nor ever failed to pray for their brother's safe return.

One fine summer morning, they went, as they often did, to the beach, to view the sun rise upon the water. . . .

They had walked a little way in silence, when Martha said, "Dear Mary, I was just thinking how kind God has always been to us; and was wishing that it might please Him to send John home to us this very day. What a day of joy would it then be!"

And such a joyous day it was to them both; for no sooner had they left the beach, than the good ship Rover came in sight of the very spot where they had stood. Her crew had all been paid, and John stepped on shore with a light heart; his discharge was in its tin case, and his pocket was full of gold. It was, indeed, a happy day for the two affectionate sisters.

A reasonably intelligent child who read this would certainly have every right to respond as Huck does to Miss Watson's pious exhortations. Even if the

<sup>19</sup> *Ibid.*, p. 28.

child did not verbalize his response, a tale like this would certainly add to a growing suspicion that school was just the icing on the cake and was generally unrelated to the substance of life as he saw it.<sup>20</sup>

Besides Twain's imaginative analysis of life in the McGuffey era, we have other descriptions, notably those of Warren Burton in *The District School as It Was* and Edward Eggleston in *The Hoosier School-Master*. Both books emphasize the contrast between the rough and tumble life of society and the rigid formality of school. Burton describes a New England school, but it is probably not very different from the Midwestern schools; he complains specifically of the "abstract moral sentences presenting but a very faint meaning to the child, if any at all."<sup>21</sup>

Probably the most outspoken description of Middle Border life is that of Philip D. Jordan in an Ohio Valley issue of the *Saturday Review of Literature* written in 1945:

The Ohio country, rim of the frontier during the pulsing, restless early decades of the nineteenth century, was no easy land of milk and honey where romanticism flourished in forest clearing and chinked cabin....

Sallow-faced emigrants, from Fort Pitt, down past Marietta to the Licking and Miami Rivers, and on to where the Ohio flowed into the Mississippi, carved an empire from a vast timbered land of Indians, and of fever and ague, dysentery, cholera, typhoid, and milksickness. The hunter looked upon Nature with suspicion, and the sower, a confirmed skeptic, kicked savagely at the moldboard of his homemade plow.<sup>22</sup>

Jordan condemns the McGuffey Readers as "smug and perhaps inappropriate" to this atmosphere. With his description in mind we can understand the difficulty children must have had comprehending many of McGuffey's stories. For example, in a well known story in the *Fourth Reader* of 1857, George Washington's father proves God's existence from the many beautiful and convenient objects in the world. Mr. Washington has spelled out George's name with cabbage seeds; the seeds have sprouted and George runs for an explanation to his father, who says:

"A short time since, and you discovered these letters in this bed; they appeared wonderful; you called me; you wished to know how they came here; I told you they might have come by chance; this did not satisfy you; can you tell me why?"

<sup>20</sup> A rival reader condemned the McGuffey Readers for manipulating natural events in order to "point a moral and adorn a tale": L. J. Campbell, *A Few Words in Vindication of Hillard's Readers from the Attacks of the Publishers of McGuffey's Readers* (Boston, [1868]), p. 17.

<sup>21</sup> *The District School as It Was* (Boston, 1833), p. 52.

<sup>22</sup> "Roots in the Valley," *Saturday Review of Literature*, XXVIII (1945), 8.

"Because it seemed as if somebody must have sowed the seed here just so," said George.

"True, it does appear so. And now can you tell, my son, *why* it appears so?"

"Because," said George, "I think somebody had a *design* in it; and you told me that *you* had some design in it, father."

"Just so, George; I *had* a design in it; and the *marks of design* prove that the plants did not grow thus by chance, but that some agent, or being, was concerned in them. Is it not so?"

"Yes, sir."

"Now, then, George, look around. You see this beautiful world. You see how nicely all things are *contrived*; what marks of design there are! We have fire to warm us when we are cold; water to drink when we are thirsty; teeth to eat with, eyes to see with, feet to walk with. In a thousand things we see design. There must then have been a *designer*; some one who formed these things for a *purpose*; for some *end*."

"Ah!" said George, "I know whom you mean, father."

"Whom, my son?"

"**GOD ALMIGHTY.** Do you not?"

"Yes, I mean **HIM**. It was He who created all the beautiful and convenient things which you see around you."

This is nothing less than the argument from design so popular in eighteenth-century England, but, interesting as it is, one wonders what evidences of design were seen by the Middle Border settler who was engaged in a struggle with nature for his very existence. The landscapes provided by the early McGuffey Readers are those of the English park, cultivated and tidy, with pleasant cottages surrounded by neat fences. In the background of a picture in the 1853 *First Reader* we even find a neoclassic temple which looks suspiciously as though it had been transplanted from a fashionable eighteenth-century English estate.

The contrast between the world portrayed by the McGuffey Readers and the harsh realities of frontier life has been summarized by Henry F. Pringle:

The newspapers of the day, like the Cincinnati Enquirer and the Ohio State Journal, of Columbus, make it quite clear that America was not the simple and moral land that it supposed itself to be. Their columns were filled with patent-medicine advertising and with lures to make a quick killing in land speculation.

The small boys and girls neither knew nor worried about such things. Perhaps their parents did, and shrank from the facts of life. They preferred the world of the McGuffey Readers, where a lad was rescued from ruffians by the dog he had once fed, where industry was "itself a treasure." It may have been an imaginary world, but it was a good one.<sup>28</sup>

As Pringle suggests, the Readers may owe their success to their oversimplification.

<sup>28</sup> "He Scared the Devil out of Grandpa," *Saturday Evening Post*, CCXXVII (1955), 114.

fied image of life which convinced anxious parents and wayward children that the moral universe was as real as the physical universe. McGuffey's imaginary world symbolized the aspirations of the Middle Border which was struggling to elevate itself from a state of anarchy and chaos to an orderly culture. The ideal in itself was of course valid; what the modern reader wonders is whether the artificiality of the ideal the McGuffey Readers presented was not self-defeating. By ignoring the realities of Middle Border life, the Readers may well have lost their claim to validity. The child probably remembered wicked George Craft as a fairy tale imp rather than as an elevating moral example, for it does not take much observation to see, as Huckleberry Finn saw, that virtue is not instantly rewarded nor vice instantly punished. Morality has deeper roots than McGuffey's mechanical stories imply. Those who lived in the Middle Border turned to the clear-cut and inviting morality of McGuffey as an ideal. That it was narrow and unrealistic they failed to recognize. Our task is to avoid such oversimplified answers which ignore the complex reality of moral issues. Tabloid thinking and stock responses are too often encouraged by our mass media—how are we to prevent them from entering our textbooks as well?

Jean Piaget's study of the moral judgment of the child suggests some of the complexity of moral thought which should be recognized by anyone concerned with "teaching" morality.<sup>24</sup> Piaget distinguishes between effective moral thought which is developed only as children gain experience in the human world around them, and the verbalized morality which children express when adults demand behavior which the children do not understand. For example, the young child condemns a lie when it fails, while an older child condemns it when it succeeds. Piaget points out that "one must have felt a real desire to exchange thoughts with others in order to discover all that a lie can involve."<sup>25</sup>

The kind of morality McGuffey's stories exemplify is unquestionably what Piaget would call verbal morality, as we saw in the moral formula of "Good Sense and Pride": "The sure way to be happy is to be good." Again, in one of McGuffey's fables we find an intriguing story abruptly cut short by the concluding moral. Here is the fable, from the *Third Reader* of 1857:

Two hungry cats, having stolen some cheese, could not agree how to divide it. So they called in a monkey to decide the case.

"Let me see," says the monkey with an arch look, "this slice weighs more than the other." With that, he bit off a large piece, in order, as he said, to make them balance.

The other scale was now too heavy. This gave the upright judge a fine pretense to take a second mouthful.

"Hold! hold!" cried the two cats, "give each of us his share of the rest, and we will be content."

<sup>24</sup> The Moral Judgment of the Child (New York, 1932).  
<sup>25</sup> *Ibid.*, p. 163.

"If you are content," says the monkey, "justice is not. The law, my friends, must have its course."

So he nibbled first one piece, and then the other. The poor cats, seeing their cheese in a fair way to be eaten up, most humbly begged the judge to give himself no further trouble.

"Not so fast, I beseech you, my friends," says the judge, "we owe justice to ourselves as well as to you. What is left, is due to me in right of my office."

So saying, he crammed the whole into his mouth, and very gravely dismissed the court.

This is a dramatic tale, extremely realistic in its satire, with an intriguing plot and a shrewd comment on life. When we reach the end of the fable we find ourselves laughing at human foibles and perhaps understanding ourselves slightly better—and then McGuffey intrudes with this verbal formula:

#### MORAL

This fable teaches us, that it is better to bear slight wrong, rather than to resort to law for trifles.

To summarize the fable in this way is to limit and distort its meaning. The determination to enforce a practical moral lesson defeats its own purpose; if that is all the story means, it is not worth reading.

Reading the McGuffey Readers tempts one to point one's own moral. The dangers of McGuffey's concept of education remain with us though the Readers themselves have vanished. Hopefully, they may serve to remind us that what we want our children to receive from literature is not a sententious moral, but a sense of the complex richness of life; not a verbal formula which is abstracted from life, but a clarification and evaluation of the fabric of life itself.

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# Teaching Scientific Theory to First Grade Pupils by Auto-Instructional Device

*The research undertaking on which this article reports has been a center of strong educational interest, both because of the project's auto-instructional aspects and its possible contribution to psychology and curriculum.*

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STUDIES HAVE CONCLUDED that most children at the age of six or seven do not give scientific explanations for physical events; instead children offer animistic, phenomenological or magical accounts (Deutsche, 1937; Oakes, 1947; Piaget, 1929 & 1930). The point of view adopted in the present investigation is that children can be taught to give scientific explanations of physical phenomena if they learn a theoretical language for dealing with such events. The purpose of this article is to describe an attempt to help first grade pupils

acquire and use aspects of scientific theory in explaining certain physical phenomena.

Scientific theory is defined as a set of verbal statements which mediate between (1) the observed phenomena and (2) behavior controlling or predicting further events. If an individual acts without the use of such mediating language, there is no proof that he is using theory; like primitive man, he may have learned merely what to do under specific circumstances. With scientific theory he possesses a tool which enables him to generalize to unfamiliar instances of the phenomena. On the other hand, just saying the words in a theory does not necessarily involve them as true mediators. The child must demonstrate that he can make the appropriate statements and respond to his own words in the solution of problems different from those previously encountered. In order for children to give scientific explanations, they must learn the statements we call scientific theory as a chain of intraverbal behavior and demonstrate that they can use segments of the chain appropriately.

The first grade children in this study were taught several basic statements of molecular theory as related to the complementary processes of evaporation and condensation, among which five were regarded as the most important:

1. Molecules in a liquid move around each other; they stay packed together, close to each other.
2. Molecules in a gas move in all directions; they do not stay close to each other.
3. The hotter a substance is, the faster the molecules move; conversely, the colder it is, the slower the molecules move.
4. If some of the molecules near the surface of a liquid move very fast, they escape from the rest and go off in all directions.
5. When molecules of a gas move too slowly, they are pulled together and form a liquid.

The verbal statement of these principles was varied so that learners would acquire different patterns of intraverbal responses to express each relationship. The mediating function of the theoretical statements for explaining problems of evaporation is illustrated in Fig. 1.

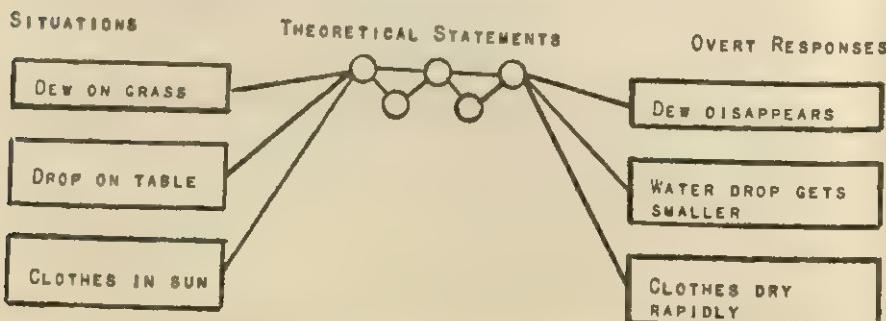


FIG. 1. A schematic representation of the role of scientific theory in dealing with problems of evaporation.

On the left, the boxes represent different concrete problems presented to the child. If the child has learned to label these situations appropriately (e.g., "liquid being heated"), these words in turn should bring about statements of the principles, a chain of circles at the top, ending in an overt response of prediction or environmental control, the boxes at the right.

What the child says or does on the right hand side depends in part upon his familiarity with the specific situation and the question being asked as well as the scientific language he has learned. His explanation of the situation consists of overt expression of the intraverbal responses or theoretical statements of principles.

To undertake this study, a three-week instructional unit or program was constructed and administered to a sample of first grade pupils using an auto-instructional device called a Videosonic Tutor.<sup>1</sup> Instruction was carried on exclusively by the machine's simultaneous projection of colored slides and a recorded vocal commentary, the child responding to each problem presented by pressing one of three buttons. The auto-instructional features of the approach permitted a consistency of instruction not possible in the usual teaching situation and afforded a reliable record of each child's performance (Lumsdaine & Glaser, 1960).

#### INSTRUCTIONAL PROGRAM

In preparing the program, the original set of items was tried out with pupils and revised three times. The final content of the instructional unit used in the experiment consisted of 432 items organized into thirteen daily lessons. A distribution of these items by topics is to be found in Table I.

TABLE I  
Distribution of Items by Topics

<i>Topic</i>		<i>Number of Items</i>
a. operation of Videosonic Tutor.....		26
b. code for interpreting molecular motion and direction .....		56
c. molecules as elementary particles.....		42
d. movement of molecules as related to states of matter .....		86
e. the concept of molecular attraction .....		21
f. evaporation (vaporization) .....		80
g. temperature as related to molecular motion .....		44
h. condensation .....		66
i. the distinction between gas and gasoline.....		8

Questions or problems accompanied nearly all of the items, and the items themselves were arranged in a sequence designed to assist the child in answering successively more and more difficult questions. The learner was required to answer each question correctly before advancing to the next item.

The program was built around the chain of intraverbal responses previously described. The word "molecule" was related to every day objects. The

<sup>1</sup>An auto-instructional device developed by Hughes Aircraft Company, Culver City, California.

properties of liquids and gases were taught in terms of molecular movement. By extending the chain to show how fast-moving molecules escape from the liquid and become free-moving to form a gas, the intraverbal associations were presumably formed to describe the process of evaporation. The effect of temperature upon the speed of evaporation was then clarified. A similar process in reverse was used to teach condensation. In all of these attempts the associations were promoted by the use of analogies, pictorial prompts, and special codes taught within the program.

The learner was required to associate almost every word or phrase in the intraverbal chain with other links in the chain. He was shown, for example, a pan of hot water and was asked to infer the speed of molecules. At other times, when shown a pan of hot water, he was asked to predict the speed of evaporation. The procedure was also reversed by presenting a picture of a pan of water and asking the learner to indicate how he would hasten the evaporative process. This network of "meaning" was continually reviewed by additional items which were always slightly different. Thus it was hoped that several strong linkages of verbal responses would become available to the learner for his use.

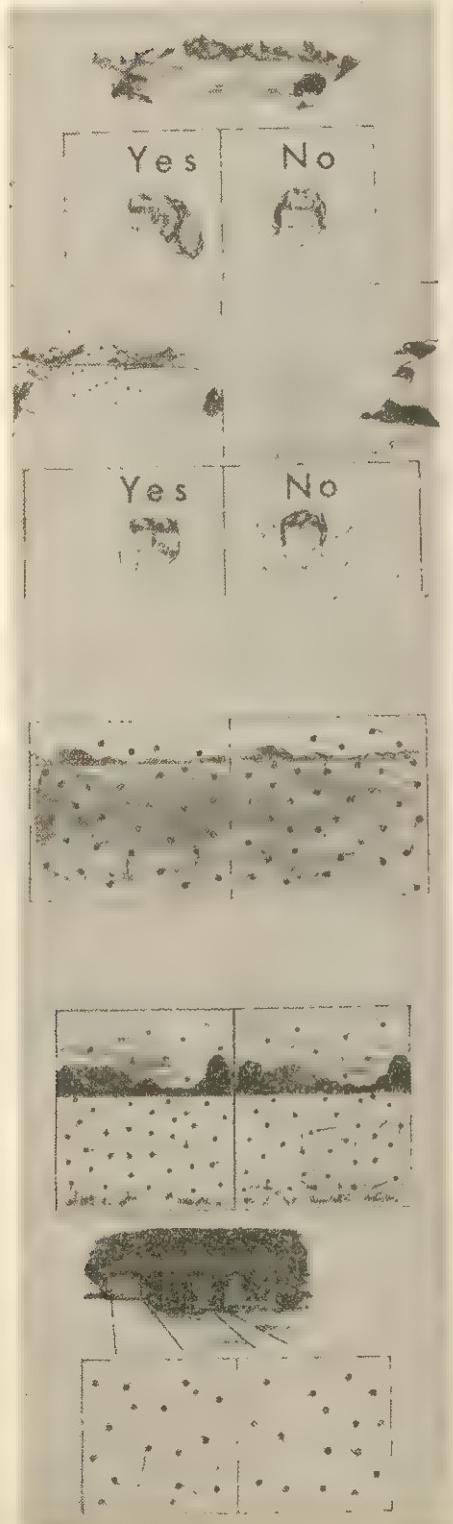
An illustration of the program can be seen in the accompanying sequence, Fig. 2, a sample drawn from the twelfth lesson. The original pictures were in color. The items shown in Fig. 2 review the topic of condensation by presenting the phenomenon *dew* as a new example of condensation. The child must apply a principle he has already learned, namely that cooling of water vapor slows down the molecules, resulting in drops of water. These pictured items exemplify the use of two communication codes taught earlier in the unit: the use of vectors in indicating speed and direction and a color code in which water vapor is depicted as blue and air as red. It is assumed that the learner must use verbal statements in explaining and predicting, something more than mere recognition of a right answer. This sample sequence also shows the cumulative nature of the teaching process and the simple step from each item to the next so that the learner almost always gets each item right.  
*Subjects.*

Thirteen first grade pupils, who represented a range of ability, made up the experimental group. The control group consisted of a like number matched with the experimental group on the basis of the teacher's assessment of the pupils' attentiveness, maturity, and intellectual ability, as well as scores on a pre-test of vocabulary used in the program, e.g., "desert," "oil." Children in the control group received no special instruction.

#### TEACHING PROCEDURES

Children appeared individually at a room made available for the auto-instruction. A research assistant was always present for the purpose of loading

FIG. 2. A sample sequence, items 1-15, from lesson 12.



1. There is always water vapor in the air. Can you see water vapor in the air?

Right! Of course not. Water vapor is a gas and so the molecules are too small and far apart to be seen.

2. In one of these pictures the molecules of air have been drawn. But in the other pictures no air molecules are shown. Does that mean that there is no air in this other picture?

You're correct. You really can't see air but it is still there. Sometimes we draw dots or circles so you can see how molecules act.

3. After the sun sets, everything gets colder. Which picture shows that the air around the grass is cold?

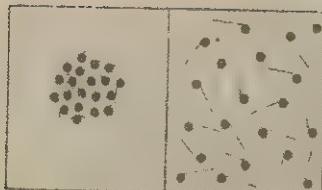
You're right. Molecules of air move slowly when the air is cold.

4. Besides air, there is water vapor near the grass. Which picture shows that air and water vapor cool down as the sun sets?

Right! The cool night slows down air and water vapor molecules.

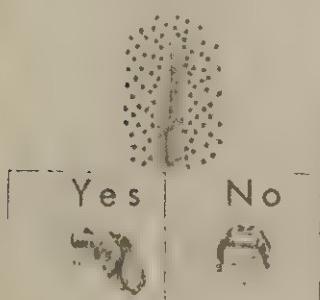
5. During the night it is colder than it is during the day. In the day the sunlight warms everything up. Which picture shows air molecules and water vapor molecules during the night?

Right, since it is colder at night the air molecules move more slowly.



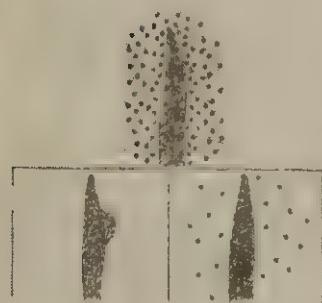
6. Which picture shows how the water vapor molecules would look after hitting something cold?

Yes, the water vapor molecules are attracted to each other when they are slowed down by something cold.



7. Here is a tiny blade of grass that is cooled when the sun goes down. Will the water vapor molecules go faster near the blade of grass?

Good for you! Because the grass is cool, the molecules will slow down near the blade of grass.



8. Here is a tiny blade of grass. The sun is setting and so the water vapor molecules near the blade of grass are slowing down. What happens to the water vapor when the molecules slow down? Which picture shows?

That's right! If water vapor slows down enough, the molecules will come together or condense.



9. The water vapor molecules are attracted to each other on this cold blade of grass. What picture below shows a blade of grass which is warm?

Right! If a blade of grass is warm, molecules of water vapor aren't slowed down. They can't attract each other to form drops of water.



10. The drops of water on this grass were made by water vapor condensing on the grass. These drops are called DEW. Are dew drops made when the air is cold enough to condense the water vapor?

Correct! Water vapor condenses only when the air is cold enough.



11. Sometimes dew drops are formed on spider webs and leaves. Where do these drops of water on the spider web and leaf come from? Do they come from a cloud up in the sky, from a sprinkler or from the water vapor which is all around? Which picture shows?

That's fine! The cool nights slow down the molecules of water vapor so it condenses as a liquid on the web and the leaf.

12. Dew might be found on almost everything that cools when the sun goes down. Here is a leaf that was cooled during the cold night. Is the drop of water on the leaf a drop of dew?

Good for you! Water that condenses on a leaf is called dew.

13. Dew formed on this flower during the night. Did the dew drops come from rain or from water vapor molecules in the air? Which picture shows where the dew came from?

Good for you! Dew comes from water vapor in the air.

14. The drop of water condensed on the leaf as the night started to cool. There is lots of water vapor around this drop which could condense. What will the drop look like if the night stays cool?

Good! The drop of water will get bigger as more water molecules condense.

15. If there is lots of water vapor in the air you will find more dew in the morning. Which picture shows a place where you would get lots of dew?

Right! The more water vapor there is in the air, the easier it is for molecules of vapor to be attracted to each other.

the Videosonic Tutor and maintaining a record of each child's performance, but this assistant gave no instruction of any kind. Each child spent approximately fifteen to twenty minutes with the device each day for a period of thirteen days.

A single Videosonic Tutor was used throughout the experiment. At the beginning of each daily session, the research assistant seated the pupil in front of the device and started it. For each sitting approximately thirty-six slides were projected in sequence upon a viewing screen at the front of the Tutor. These slides usually consisted of a central picture with two or three sub-pictures constituting the alternatives to the question to be asked. While each slide was projected, the child heard through earphones a commentary from a tape recorder in the device.

This commentary supplied necessary information about the picture and asked a question. After each question, the tape recorder automatically turned off, at which time the pupil pressed a button corresponding to the sub-picture he chose as his answer. If he was correct, a green light was lighted beside the button pressed, the tape recorder started to play again, and the child heard words of approval along with the brief explanation as to why this answer was correct. A new slide was then automatically presented, and the process was repeated.

When an answer was in error, the green light did not go on, and the child had to clear the keyboard by pushing a yellow button before he could try again. The program would not advance until the pupil pressed the correct button.

#### *Post-Test*

The day after the completion of the videosonic instructional program, children in both the experimental and control groups were given a post-test of approximately ten minutes' duration. This test consisted of a standardized interview in which the child was presented with actual physical phenomena and asked to explain these phenomena by (1) supplying appropriate terminology, (2) describing what had happened, (3) predicting what would happen subsequently, or (4) showing how he would make certain things happen. In this way, the child was asked to use segments of the intraverbal chain taught. For example, the child was shown a plastic box in which there was mercury, a substance that had never been referred to in the program. He was asked whether "this thing in the box" was a solid, liquid, or gas. The child was also requested to give reasons for his answer. A sample of other questions asked appears in the subsequent section of this paper. Contrary to the instructional phase of the study, the post-test required the learner to say words out loud.

An interviewer and a recorder, both of whom were strangers to the experimental and the control children, conducted the post-test. These two

assistants were not told which children had received the auto-instruction. The child's oral response to each question was recorded, and the records were subsequently read and scored by these same assistants.

### *Preliminary Results*

All except one of the thirteen experimental children showed higher post-test scores than did their controls, a difference which is significant at the .01 level on the basis of a sign test. The one exception was a girl who had shown successful performance throughout the program but during the interview appeared to be quite withdrawn and answered only five questions, all of them correctly.

The mean score of the experimental group on the post-test was 66% of the total possible, while the control group mean was 22%. Three of the experimental group made scores higher than 90% correct, demonstrating an unusual mastery of the content of the program.

The contrast in quality of answers given to questions by pupils in the two groups is illustrated by the following summary of responses to six of the twenty-one questions in the interview. In presenting the percentages of appropriate answers, it is to be noted that the remaining per cent always constitutes irrelevant or "don't know" answers.

Interviewer: "I'm blowing on my hand. You blow on yours. Do you feel the air on your hand? What is air made of?"

Answers: 92% of the experimental group correctly indicated that air was made of molecules; no one in the control group gave a correct answer.

Interviewer: "Is air a solid, liquid or a gas?"

Answers: 85% of the experimental group and 14% of the control group correctly answered that air was a gas.

Interviewer: "How can you tell that air is a gas?"

Answers: Only 15% of the experimental group gave an answer indicating that a gas filled its container or that molecules moved in all directions. Apparently the program failed to teach this characteristic of a gas. None of the control group gave this kind of answer.

Interviewer: "There is water vapor in the air in this room. See this cold glass. What happens to the molecules of water vapor when they come near the glass?"

Answers: 62% of the experimental group said that water vapor molecules would slow down when they came near the glass, would attract each other, or form drops of water. 7% of the control group said "they" go more slowly or make more water.

Interviewer: "A little while ago I dried this glass off with a cloth. But look

at all the water on the outside of the glass. See, the cold glass is wet; feel it with your fingers. How did the glass get wet on the outside?"

Answers: 62% of the experimental group answered that molecules were slowed up, were attracted to each other or formed drops. 38% of the control group said "it perspires" or "from the cold water" or "cold glass."

Interviewer: "What happens to the molecules of water vapor when the water vapor condenses?"

Answers: 46% of the experimental group said that the molecules move more slowly, come together, or form drops. The control group said they did not know.

All youngsters in the experimental group said that one could not see molecules, indicating that representational drawings did not result in a distorted notion about the visibility of molecules.

With respect to the performance of the experimental group during the program, several additional comments are in order. Individual children differed in the number of errors they made. One pupil made as few as 7%, while another, with the lowest reading readiness score, made as many as 29%. The average child missed 14% of all items in the entire program. The daily lessons varied in difficulty; the average error for each day ranged from 7% to 19%.

Success on the post-test was significantly related to the number of errors made during the auto-instructional program ( $\rho = -.60$ ). There was some evidence that the program was more appropriate for children with a high reading readiness and effective study habits.

The final question in the videosonic instructional program asked the pupils if they would like to continue learning new things in this fashion. All children responded by pushing a button indicating "yes." The classroom teacher from whose class the children were drawn reported that the children looked forward to the program each day. Many of the children spontaneously took ideas from the auto-instructional materials, using them in the creation of their stories for classroom purposes.

#### *Conclusions*

I. While there are great individual differences, first grade pupils can learn an abstract scientific language. It appears that most children can learn to use this language as segments of the chain of intraverbal responses in the explanation of the physical phenomena of evaporation and condensation. The kinds of behavior called for by the program and the performance of the children on the post-test demonstrated that children had acquired general understanding, not mere rote learning. Extension of the program should result

in further progress in helping children generalize to new situations. The program is still too difficult for most first grade children. Revision of the items should include a more detailed sequence, more adequate reviews, and a wider sampling of the phenomena being discussed.

2. Even though the multiple-choice method was used throughout as the sole means for responding, most of these children were able to use previously unfamiliar terms as well as their own words in explaining problems of evaporation and condensation. A few of the children showed some hesitation in verbalizing scientific terms. This might have been because these children had never before been called upon to say the words overtly. Future experimentation with the Videosonic Tutor should provide for recording the child's voice. With practice in speaking out loud, pupils would probably show (a) more facile expression and (b) more accurate use of scientific language in the solution of new problems.

3. The Videosonic Tutor held the interest and attention of all of these six-year-old children over a period of almost three weeks. While it is impossible to conclude that this interest will continue on the part of young children for a full school year, it seems highly probable that effective programming is the key to motivation.

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# Attensity: Factors of Specific Set in School Learning

*Doris R. Entwistle's interest in the psychological basis of schooling and in the methodology of educational experiments is reflected in this article. She reports and discusses the results of her recent experiment on directing students' attention and interest toward a specific subject matter and its effect on learning. At present a post-doctoral fellow of the Social Science Research Council in the Department of Education, The Johns Hopkins University, Mrs. Entwistle received a Ph. D. in Education from Johns Hopkins. Her field of specialization is educational psychology.*

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THIS EXPERIMENT investigates a group of methodological problems having their closest parallel in the attitude factors revealed in the Hawthorne experiments (Roethlisberger & Dickson, 1939), where it turned out that experimentally produced changes in working conditions were carriers of social meaning rather than mere changes in physical circumstances. When an experimenter enters a school, there is little doubt that he unleashes some potent psychological influences—*influences independent of the particular problem he is studying*. To simplify the discussion, this cluster of influences will be referred to as "attensity" in this paper. For instance, how is the outcome of a school experiment affected by the subjects' realization that they are part of an experiment? Even a control group may be affected by knowledge that they are "excluded." Or, to take

<sup>1</sup> While part of this research was being done, the author held a National Fellowship from Pi Lambda Theta.

<sup>2</sup> This article is taken from a dissertation submitted in partial fulfillment of the requirements for the Ph.D. degree at the Johns Hopkins University. Professor J. M. Stephens was the principal adviser, and at every stage of the experiment he contributed valuable suggestions. The author is also indebted to Drs. David Danskin, Wendell Garner, and James Keuthe who served as advisers during various phases of the experiment. Dr. Charles E. Peterson served as a second experimenter and contributed many valuable suggestions during the planning and execution of the experiment.

another example, if an experiment treats meaningful material that may be encountered elsewhere, how much of the learning that occurs "from the experiment" should be attributed to the experimental treatment *per se*, and how much to the casual learning that occurs outside but is encouraged by the experiment?

Specifically the hypothesis is that directing students' attention toward a given body of subject-matter (administering attensity) may foster learning, and may do so irrespective of the specific procedures by which attention is directed. Further, this directing may be a potent influence even when there are only indirect opportunities for students to encounter the subject-matter. The question at issue is whether a school experiment can produce measurable increments in achievement without formal teaching.

At the very least, executing an experiment serves to inform subjects that they are being attended to, that someone is more-than-ordinarily concerned about them. Abundant evidence from other fields vouches for the potency of this kind of concern. The famous Hawthorne experiments, already mentioned, conclude that "attention" produced larger changes in output than manipulation of any physical variables. Variations in work behavior turned out to be much more closely related to attitude toward the changes introduced by the experimenters than to the changes *per se*. Other workers (Pincus & Hoagland, 1945) have found like effects in industrial experiments on fatigue. Similarly, in drug evaluations we know that the ritual of administration has much to do with the apparent potency of medications. Dosages are misjudged unless account is taken of placebo-reactors (Diehl, 1933; Jellinek, 1946; Beecher et al., 1953; Lasagna et al., 1954).

In order to assess "extraneous" attitudinal forces in a school setting, this experiment studies three main treatment groups: a control group which remains in the library; a pseudo-training group, led to believe it is participating in the experiment but given no actual instruction; and a real-training group, given genuine teaching but on only part of the total task. The pseudo-training group is exactly analogous to subjects given placebos in medical experiments. The real-training group, trained on only part of the material, offers an alternative means of estimating the placebo components of training; the performance of group members on untrained material can be compared with their performance on the trained material.

The methodological difficulties bound up with attensity stem from two main sources: human beings serving as subjects, and meaningful material constituting the experimental task. Human beings are probably affected by all the "extraneous" procedures of an experiment—repeated testings, introductory remarks of the experimenter, etc. It seems unwise to assume that the impact of these "extraneous" procedures, common to many kinds of experiments, is negligible, even though this assumption is often made. Secondly, meaningful material is often bypassed in favor of nonsense syllables or nonsense figures, in

order to circumvent a host of problems. A particularly troublesome one of these problems is that presentation of the experimental material is hard to control when the material is meaningful. This is particularly apt to be a source of difficulty when the meaningful material is taken from the curriculum of the elementary school, because such material is so universally present in the everyday environment.

But, to shift the viewpoint somewhat, the very forces which "contaminate" an experiment may have a decidedly positive role in advancing the work of the school. That is, students' suggestibility may cause them to be imperfect experimental subjects—they may be "impressed" by the apparatus or experimental procedures—but it may also cause them to heed the day-by-day admonitions of their teachers. Likewise for material to be learned outside an experiment is not handy for the experimenter, but ordinarily outside learning would serve to advance the schooling process. So if attitude factors, or vicarious learning, or other results of attensity play an appreciable part in school learning, these phenomena deserve investigation quite apart from their importance for methodology, because their elucidation may shed light on "ordinary" parts of the schooling process.

#### PROCEDURE

As indicated above, the effect of generalized attention (attensity) on achievement was measured in two ways. (i) A supplementary control group (Pseudo-training group) participated in mock training sessions, and was exposed to the same "irrelevant" features of training as a main experimental group: they heard the introductory remarks of the experimenter, they witnessed the apparatus, they took part in repeated "training sessions", etc. They received the same treatment as the experimental group (Real-training group) except that no actual information was given them during training. Cue slides, to which they were instructed to associate responses, were blank but slides were flashed so quickly that the blankness was not apparent. (ii) An experimental group (Real-training group) was trained on only one-half of the material covered in the criterion test. The test material was split into halves of equal difficulty, care being taken to see that no positive transfer was possible from the trained to the untrained half. After being trained on one half, their performance on the non-trained half indicates how much the "irrelevant" features of the experiment foster achievement. (iii) A control group received no "treatment"—they sat in the school library while the other groups were being trained. Since taking a preliminary test which precedes training may be a very potent means of administering attensity, the three groups (Real-training, Pseudo-training, and Control) were further divided into pretested and non-pretested halves.

Ss were fourth-grade students in a single school in Baltimore City.<sup>3</sup> The

<sup>3</sup> Grateful acknowledgment is made to Miss Mary Adams, Assistant Superintendent, Baltimore City Schools, and to Mrs. Marie Frank, Principal, Arlington Elementary School, for

Control group (Group C) consisted of 60 students, removed from their classrooms and reassembled in the school library. The Pseudo-training group (Group P) and the Real-training group (Group R), also 60 students each, left their classrooms and reassembled respectively in the two school cafeterias. Randomly selected halves of Groups C, P, and R were pretested on a 58-item test of state-locations of large U.S. cities. Details of this testing will be given below. At intervals of 2, 5, and 7 weeks<sup>1</sup> after pretesting, the P and R groups participated in training sessions which lasted about 20 minutes. One week after the last training session, all Ss were posttested with the same 58-item test.

For training, both the P and R groups were given a 5-minute talk stressing the importance of learning the state-locations of large U.S. cities. Following the talk, pairs of slides were presented by means of a 2x2 slide projector fitted with a tachistoscopic attachment. Exposure time for all slides was 0.02 sec. After the first member of each slide-pair was presented (supposedly the name of a city for group P and actually the name of a city for Group R), time was allowed for Ss to write on an answer sheet the name of the state where the city is located. The P group was thus instructed to fill in the name of a state when it was impossible for them to have seen a city's name preceding. The R group also filled in names of states, but following genuine cues, so their training was of the usual paired-associates type. After Ss had an opportunity to anticipate the name of the "correct" state, the name of the correct state was projected. Both the P and R groups were shown correct responses (names of states). A total of 34 pairs was presented to both groups.

The R group received 29 pairs of actual cities and states, plus 5 pairs in which the city-slide was blank. The 29 pairs used to train the R-group comprise Half A of the criterion test. They were informed in advance that on some occasions they might be unable to see a slide; in this event, they were instructed merely to wait for the next slide.

The P group received 5 pairs of actual cities and states, and 29 paired presentations in which a blank was shown when Ss were led to expect the name of a city. (A preliminary experiment established the feasibility of the blank-slide procedure.) The P group thus received pairs in which the stimulus was usually lacking, but was always shown the correct response. They were also told in advance that they might sometimes be unable to see a slide; in fact the introductory remarks of the experimenters were identical for the P and R groups.

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making this experiment possible. A preliminary experiment, possible through the kind co-operation of Mr. B. Melvin Cole, Director of Elementary Education, and Mr. Maynard Webster, Principal, Lutherville Elementary School, Baltimore County Schools, was indispensable to the success of the Arlington experiment.

<sup>1</sup> It was decided to spread training out over a considerable period of time in order to allow opportunity for Ss to encounter relevant material outside the experiment. Whether this spreading out tended to increase the size of the observed effects is not known. It may well be that concentrated training would have yielded larger effects since there would be less tendency for Ss to forget material.

The training of the P and R groups was complementary: information withheld from group P, a large fraction, was presented to group R; a small fraction, withheld from group R, was presented to group P. Furthermore, the 5 pairs presented to group P consisted of cities already known by the Ss (New York, Chicago, etc.), and these 5 cities did not appear on the pre-post tests.

During each training session, the series of 34 slide pairs was presented to each group, with the order of presentation scrambled from one session to the next. Two training groups necessitated two Es, and a teacher monitored the control group. Insofar as possible, Ss were trained alternately by the two Es and went alternately to the two cafeterias.

The criterion of learning was posttest score on the 58-item test of state-locations of cities. The test includes all U.S. cities over 150,000 population according to the 1950 U.S. Census, with ambiguous cities (Springfield, Portland, etc.) eliminated. Each city was assigned four possible answers, with the correct answer in a random position. As mentioned earlier, the total test is split into halves of 29 items each, with halves equal in difficulty and disjunct for transfer. To avoid transfer, no overlapping of states between halves was permitted. The means for 100 Ss<sup>5</sup> at pretest, before the first training session, were: Half A, 14.98; Half B, 15.06. The halves correlate 0.73 and have comparable standard deviations. The slides used for both real and pseudo-training dealt with Half A only.

Testing was carried out with Ss in their own classrooms, with E reading the test aloud over a public-address system. This tended to minimize differences in reading ability among the Ss. Ss were instructed to answer every question, and did so, thus reducing problems of correcting for guessing or response sets.

Ss were not told anything about the overall schedule of the experiment by E, except that at the conclusion of the first two training sessions E said: "I will be coming back on another day, and we will try this again."

The design is a complete factorial on four variables: (1) Pretest vs. no pretest; (2) Treatments (real-training, pseudo-training, control); (3) IQ (5 levels); and (4) Classrooms (six). To assign Ss, five IQ strata of six students each were first formed in each classroom. That is, the six students ranking highest on IQ formed IQ-stratum 1; the students ranking from 7th to 12th formed IQ-stratum 2, and so on. Then the six students within each Classroom-IQ stratum were randomly allocated to one of the six treatment-pretest combinations. After this assignment was complete, minor adjustments were made to equalize proportions of boys and girls in each of the six treatment-pretest combinations. This method of assignment provides for equal representation for each teacher (classroom) in each treatment group, comparable IQ distributions in each treatment group, and comparable sex division in each treatment group. There were more than 180 Ss available, and excess Ss were assigned by identical

<sup>5</sup> More Ss than could be used in the final design were pretested to cover future losses.

methods before the experiment so they might serve as replacements to cover future losses.

For 5 classrooms, the mean IQ was about 100 with range 70-130. A sixth classroom had a much higher mean IQ (115) and so Ss from this class are omitted from analyses which follow.

## RESULTS

Posttest scores have two components, a score on Half A (exposed material) and a score on Half B (unexposed material). The halves are equally difficult (see Table 1). Half A was exposed to the Real-training group. Half B, withheld from everyone during training, was included in the pretest and posttest. No material was exposed to the Control group, and the Pseudo-training group saw only the states (answers) of Half A. Table 1 summarizes mean pretest and posttest scores for five classes.

TABLE 1.  
*Mean Scores, Five Homogeneous Classes*

	Pretested*						Not Pretested		
	Initial Score			Final Score			Final Score		
	Exp.	Unexp.	Total	Exp.	Unexp.	Total	Exp.	Unexp.	Total
Real-Trng.	14.1	13.7	27.8	18.8	16.8	35.5	18.5	16.9	35.4
Pseudo-Trng.	15.0	14.4	29.4	16.5	15.9	32.4	16.4	16.4	32.8
Control	13.6	13.8	27.4	16.1	14.8	30.9	16.5	15.6	32.1
Average for 3 groups	14.2	14.0	28.2	17.1	15.8	32.9	17.1	16.3	33.4

\* A total of 100 Ss was pretested, and the results for 75 of these Ss are included in Table 1. The remaining 25 Ss consisted of 15 Ss in the enrichment class and 10 Ss who were to serve as alternates in case of subsequent losses. For 100 Ss the mean half scores are 15.0 and 15.1.

Analysis of variance of posttest half-scores (Table 2) is composed of a between-subjects and a within-subjects portion. This permits Ss to serve as their own controls when differences between performance on Half A and Half B are tested. For compactness the last column in Table 2 shows the probabilities associated with various F-ratios. In the top half of Table 2 (between-subjects) the error term for all F-tests is 31.73, the highest-order interaction. In the lower half of Table 2 (within-subjects) the error term used is 4.78, obtained by pooling all quadruple interactions with the quintuple interaction. The pooled within-subjects error term is little different from that based on the highest-order interaction (4.78 vs. 4.96). Since none of the quadruple terms is significant, it seems sensible to use the pooled term with its greater stability.

### THE BETWEEN-SUBJECTS ANALYSIS

Pretesting, or its lack, has no significant effect. Training conditions are significant at the 0.05 level. Classes and IQ-levels are significant sources of

TABLE 2.  
Analysis of Variance, Posttest Scores, 5 Classes

Source of Variation	d.f.	Sum of Squares	Mean Square	F	P(F)
<i>Between Subjects</i>					
Pretest	1	3	3		
Training Conditions	2	211	105	3.32	0.05
Classes	4	342	86	2.69	0.05
IQ Levels	4	2403	601	18.94	0.001
P x T	2	6	3		
P x C	4	123	31		
P x IQ	4	172	43		
T x C	8	156	19		
T x IQ	8	183	23		
C x IQ	16	527	33		
P x T x C	8	150	19		
P x T x IQ	8	302	38		
T x C x IQ	32	1272	39		
P x C x IQ	16	527	33		
P x T x C x IQ	28*	888	31.73		
<i>Within Subjects</i>					
Exposure	1	86	86	18.00	0.001
E x P	1	5	5	1.05	
E x T	2	28	14	2.93	0.06
E x C	4	27	7	1.41	
E x IQ	4	32	8	1.67	
E x P x T	2	1	0		
E x P x C	4	40	10	2.09	0.10
E x P x IQ	4	13	3		
E x T x C	8	51	6	1.33	
E x T x IQ	8	70	9	1.83	0.10
E x C x IQ	16	118	7	1.54	0.10
E x P x T x IQ	8	40	5		
E x P x C x T	8	21	3		
E x T x C x IQ	32	197	6		
E x P x C x IQ	16	43	3		
E x P x C x IQ x T	28*	139	4.96		

\* 4 d.f. deducted for loss of Ss.

variance, as anticipated, but these were included as control variables. There are no significant interactions.

Treatment means for the three training conditions show that Real-training (35.50) differs from both Control (31.52) and Pseudo-training (32.64), while Control (31.52) and Pseudo-training (32.64) are indistinguishable. (To test differences between these means the between-subjects error (31.73) is used to compute a standard error of the difference: 0.79.) The mean posttest score (full test) is based on 50 Ss for each training group.

#### THE WITHIN-SUBJECTS ANALYSIS

It is necessary to dissect terms of the within-subjects analysis to test the hypotheses leading to this experiment. To test specific differences, one-tailed t-tests will be used to study directional differences specified in advance.

*Exposure during training.* The overwhelming significance (0.001 level) of this variable is surprising, because *only one* of the three treatment groups was

actually exposed to "exposed material" during the training period. The reason for the significance will be clear shortly.

*Exposure x Training-conditions.* The array of means displayed in Table 3, each based on 50 half-scores, is the main result of the experiment. Exposure x Training is significant because, while the P-group performs about equally well on exposed and unexposed material, both the C- and R-groups do better on the exposed.

Differences between exposed and unexposed scores within one treatment condition can be tested by using the error within-subjects to estimate a standard error of the mean difference. This standard error for any pair of means, each involving 50 Ss, is 0.309. The *t*-tests are summarized in Table 3.

TABLE 3.  
*Interaction of Exposure x Training (Means for 50 Ss)*

	Mean Posttest Score		Differences significant beyond the 5% level
	Half A Exposed	Half B Unexposed	
Control	1) 16.3	4) 15.2	d <sub>14</sub> , d <sub>25</sub> , d <sub>38</sub>
Pseudo-training	2) 16.5	5) 16.2	d <sub>18</sub> , d <sub>23</sub> , d <sub>45</sub>
Real-training	3) 18.6	6) 16.9	d <sub>58</sub> , d <sub>46</sub>

When exposed is compared with unexposed, both the C- and R-groups differ; the P-group does not. The superiority of the R-group on exposed material is just what would be expected, because exposed material was used to train them. The similar superiority of the C-group, however, needs explanation.

The criterion test was originally split in half to measure communication. The experiment was conducted within a single school, and *a priori* it seemed possible that the R-group might pass along information they received during training sessions to the other two groups who were receiving no actual training. Therefore some way to distinguish a gain by communication (being coached by the R-group) from a gain owing to experimental operations (pseudo-training, for instance) was needed. A gain by the Pseudo-training group on material-exposed-to-nobody (Half B) could not be attributed to communication. Thus splitting the material provides not only for a measure of attensity effects in the R-group—their performance on material never exposed to them—but also for a measure of communication when Halves A and B are compared for the C-group.

The C-group scores 15.2 on unexposed material (Half B). This group scores significantly higher, 16.3, on exposed material (Half A) even though they themselves were not exposed to "exposed material" by the experimenter. This indicates that information given in the R-group training sessions was disseminated to the C-group as well. This difference in C-group scores is very important, for unless it could be established, Pseudo-training and Control

would be judged about equally effective. We propose to use the C-group scores on unexposed material as the most realistic basal control level from which to measure departures. The C-group difference makes it clear why the "exposure" variable attains such overwhelming significance, even though only one treatment group was exposed in the experimental sessions.

So far only differences between exposed and unexposed within a single treatment condition have been discussed. There are also differences between treatment groups when exposed or unexposed halves are considered separately. To make inter-treatment comparisons for a single exposure condition, we need a value of  $t$  adjusted for the different degrees of freedom associated with the error between-subjects and the error within-subjects (Lindquist, 1956). This  $t$ -value is 1.66 at the 5% level. When Control-Unexposed is compared with Pseudo-Unexposed,  $t = 3.24$  (which is significant because 3.24 exceeds 1.66, Pseudo being greater). Likewise Pseudo-Unexposed differs from Real-Unexposed,  $t$  being 2.27, Real being greater. For exposed by the same method, Real-training is more effective than either Pseudo-training or Control, but Pseudo-training and Control do not differ.

To summarize: (i) Exposed significantly exceeds Unexposed for Real-training and Control; (ii) Exposed is not significantly greater than Unexposed for Pseudo-training; (iii) On Exposed material Control and Pseudo-training do not differ, but Real-training exceeds both other conditions; (iv) on Unexposed material there is a progression from Control, to Pseudo-training, to Real-training, with significant differences at each step.

*Lack of Interaction between Exposure and Pretesting.* It was noted before that Pretesting appeared to make no difference, and in interaction with Exposure it apparently makes no difference either.

## DISCUSSION

*Pretesting.* For Ss of this experiment, taking a pretest appears unimportant. Pretesting was conceived as one method for generating attensity, since pretested Ss might be alerted or sensitized to the particular kind of subject-matter and react differently to subsequent procedures.

Lack of a pretesting effect has been observed in two recent attitude studies by Lana (1959a, 1959b), while Solomon (1949) noted that pretesting decreased the effectiveness of later training in two small training experiments with Ss similar to those of the present study. It is not clear why this experiment differs from Solomon's, and further work is necessary to reconcile these differing findings.<sup>6</sup>

*Attensity.* Analysis of final halftest scores reveals an attensity effect, but

<sup>6</sup> Some further work (Entwistle, 1961) indicates that interactions involving pretesting are probably common, but failed to appear in this analysis because sex was not a control variable and also because apparently closer matching on IQ is necessary than was possible in this analysis.

its origins are complex. These complex origins can best be understood by comparing specific differences between groups rather than by examining trends.

(a) It was previously pointed out that C-group exposed scores exceed unexposed scores even though the C-group received no training. The C-group performs better on the half of the material used for R-group training. This probably means that one attensity effect of this experiment was to stimulate communication between groups, so the C-group is "secondarily" exposed to material used for training the R-group—being "excluded" is not therefore equivalent to "no treatment."

(b) The Pseudo-training group makes about the same score on exposed as the C-group, but on unexposed material the P-group does better than the C-group. Neither group was exposed to items contained in either Half A or Half B of the test, although the P-group participated in mock training sessions where blank slides preceded slides showing names of states contained in Half A.

(c) The Real-training group does significantly better than either the P- or the C-group on unexposed material, although training was confined to material appearing on only the other half of the test. As stated earlier, the halves should be disjunct with respect to factors ordinarily included under the term "transfer."

None of these effects is discernible from total posttest scores, and the analysis based on total scores (the between-subjects analysis) concludes merely that R-training is superior to P-training or Control—a most unremarkable conclusion. It is only when complementary scores on exposed and unexposed material are examined (the within-subjects analysis) that important differences among the kinds of training appear. The three sources of attensity (a), (b), and (c) above, will now be discussed separately.

*Performance of C-group on material exposed to R-group only.* The significant disparity between exposed and unexposed material for the C-group probably means that material presented in training sessions of the R-group was communicated to other Ss. Teachers knew the general topic of the experiment (they were present during pretesting), but they did not know that only part of the material was being used for training. Additionally, there was no way for them to know the specific items used for training and the items withheld. So it seems impossible that the difference between half scores for the C-group can be attributed to teachers' influences.

The C-group difference suggests that attensity factors are very pervasive and hard to pin down. If this difference could not be measured, the performance of the Real-training group would be underestimated, because the baseline established by the Control-group would be too high. Also conclusions about Pseudo-training would be erroneous.

Finding that a control group scores higher on material used to train their

classmates is hardly surprising, for it has long been supposed by careful investigators that there are effects like the one found here. With such effects in mind, an attempt is often made to keep Ss from knowing an experiment is in progress. In many cases, however, secrecy is impossible. The present experiment offers a direct method for estimating the effect. The procedure used here is arduous, and for some purposes, instead of breaking the criterion material into halves of equivalent difficulty in advance, it might be permissible to break the material into random halves.

One explanation for the difference between exposed and unexposed for the C-group is that a Type I error has been committed, that is, we have concluded there is a difference when no "true" difference exists. Further evidence, from a preliminary experiment done elsewhere, shows that 63 Ss about six months older than the present Ss scored 15.7 on Half A when pretested. The C-group in the present experiment scored higher—16.3—, suggesting that they manifested a "real" gain on material-exposed-to-the-R-group. Also the C-group discrepancy appears in two independent subsamples (see Table 1). These two facts are further evidence in favor of a "real" difference.

In the urban school where this experiment was conducted, the 210 Ss in the fourth-grade were assigned to six classrooms widely separated in the school. Conditions favoring communication are probably far from optimal in this type of school. In smaller schools drawing from more homogeneous neighborhoods, an attensty effect based on communication might be larger than that observed here.

The superior performance of the C-group on material never directly exposed to them argues that it may be impossible to keep attensty from spreading. The phenomenon no doubt stems from the same sources that produced the Hawthorne results.

A further matter deserves study: whether attensty-by-communication has a ceiling independent of an experiment's duration. Perhaps most of this effect comes from the initial interjection of an experiment into a school. Or conversely, the effect may appear only when an experiment is fairly prolonged like the present one.

*Performance of the P-group.* Half-scores show that the Pseudo-training group does better than the C-group on unexposed material, and that both groups perform about equally well on exposed. It is puzzling that the P-group is about the same on exposed and unexposed, unlike the other two groups. This inconsistency will be treated briefly since there is no decisive evidence bearing on it.

If results had been consonant with expectation, the P-group would have significantly exceeded the C-group on *both* exposed and unexposed material. Pseudo-training must have had some positive effects, since unexposed scores are greater than those for the C-group. But apparently positive effects for exposed material were negated to some extent, since Pseudo-training is no

more effective than the communication-effect for the C-group. It seems plausible that this negation might have come from mild punishment, because Pseudo-training required Ss to anticipate responses repeatedly when it was impossible to do this successfully. The P-group saw blank slides, to which no sensible response is possible, and yet they were led to believe they should be able to make the "correct" response, and the correct response was shown to them. Ss were in a situation very much like many classroom situations they had been in previously, when some reinforcements (correct responses being followed by either a self-administered or teacher-administered reinforcement) were forthcoming. It is probably fair to say they had some expectation of reinforcement because of the instructions, but these expectations were unfulfilled. To the extent that this is the case, thwarting of expectations may have been punishing, since Ferster (1957) finds that omission of reinforcement is punishing when reinforcement is expected. The punishment may also have affected performance on unexposed items, although to a lesser extent, as will be made clear later.

A different explanation<sup>7</sup> for the comparable performance on exposed material by the C- and P-groups is as follows. The C-group, noting others going to the cafeterias while they sat in the library, might have actively questioned the other groups. The P-group, on the other hand, having gone to a cafeteria just as the R-group did and so perhaps concluding that they received the same treatment as the R-group, might not get involved in questioning the R-group. Thus although the P- and C-groups do equally well, the dynamics of the two groups differ.

Fortunately, the P-group findings are of less interest than some other effects observed, and resolution of the P-group inconsistency does not affect the general interpretation of the experiment much. The P-group findings have value, though, because they rule out explanations other than the hypothesis for the superior performance of the R-group on unexposed material. This will be clarified in the next section.

In spite of its drawbacks, Pseudo-training—participation in a "dummy" experiment—disposes Ss to learn material when there are only indirect opportunities for learning. This learning is analogous to a placebo effect: the ritual of administration accounts for some of the efficacy of the treatment. Hearing the introductory remarks of the experimenter, seeing the apparatus, etc., bring about a different performance than sitting in the library.

A placebo effect implies that effectiveness of any specific treatment will be overestimated unless adjustments are made, and also implies that precision is sacrificed in comparing two treatments unless the effect is noted. For example, comparisons between two teaching methods, both contaminated with a placebo effect, are made against an error variance with two components

<sup>7</sup>This explanation was suggested by Dr. Daniel Forsyth.

—a component associated with pseudo-training and another component associated with "pure methods." If the variance of a pseudo-training effect can be removed, comparisons are more precise.

*Superiority of R-group on unexposed material.* The most interesting result of this experiment is the superior performance of the Real-training group on material never directly exposed to them. Beside the attensity hypothesis, three alternative explanations for this result must be considered: transfer, learning-how-to-learn, and negative information.

Superior performance on unexposed material might suggest transfer, because both lists of material were drawn from the same general class. However, great care was taken to make elements in the A list independent of elements in the B list. In no case did a response (state) appearing on the A list also appear on the B list [the condition most likely to yield positive transfer according to Osgood (1949)]. Empirical similarity between stimuli (there is no way to measure this) would theoretically produce negative transfer, since the responses would always be different. Although exceptions to Osgood's formulation have been noted [cf. Deese, p. 225 ff. (1958)], the present experiment does not appear to embody any of the conditions leading to exceptions so far reported. Positive transfer is thus probably restricted to transfer-within-lists, and it seems unlikely that learning of unexposed material comes from what is ordinarily designated as "transfer."

Nor can the R-group results be explained by learning-how-to-learn. As commonly used (Harlow, 1949), learning-how-to-learn implies some kind of problem-solving technique, where methods or principles of solutions can be generalized from one situation to another, and where the organism has had little or no prior experience with these techniques. The present experiment is suspect on both counts; there is no principle useful in attaching names of cities to state. (They knew about 28 pairs before the experiment started.) Any facilitation afforded by prior experience would tend to affect all groups equally, since three short training sessions can hardly add much to the previous experience which all groups had.

Finally, a gain by the R-group on unexposed material might stem from negative information, because Ss exposed to correct answers for 29 test items during training might be able to eliminate some alternatives in the test questions on unexposed material. An analysis of wrong choices shows that Ss failed to use negative information, because there was no change in the relative attractiveness of the various distractors from pre- to posttesting. A state included in the training material was just as liable to be chosen on posttest when it was a wrong answer as it had been on pretest.

It is likely, then, that R-group superiority on unexposed material represents an attensity effect. Yet there is some question as to why they did better than the P-group, since both groups received what was intended to be "equal attensity." The treatments were identical except for specific information or

lack of it. Of course, it may be impossible to generate equal attensity when actual information differs. By eliminating information almost entirely, some of the effects of attensity may have been cut out too. Since the P-group performed better on unexposed material than the C-group, some of the R-group superiority must be owing to the non-specific attensity procedures common to the treatments of the P and R-groups.

Beside the procedural lack of equivalence already mentioned, some other factors might account for a greater superiority of the R-group on unexposed material. For instance, specific practice on 29 items may have provided many illustrations of what the learning task was supposed to be, so that the R-group merely better understood the directions given both groups. Data on this, too lengthy for reproduction here, undermine this explanation. Both groups apparently understood the directions to the same degree.

Another factor associated with specific practice on 29 items might be acquired distinctiveness of cues—the R-training might represent “irrelevant training” for the unexposed items. Irrelevant training means training on stimuli of the same class as stimuli later used in a training task. Results of experiments on cue distinctiveness so far available (Cantor, 1955; Arnoult, 1957) conclude that “attention” training is just as effective, or more effective, than irrelevant training. Pseudo-training in some ways resembles the “attention” training of cue distinctiveness experiments. To the extent that outcomes of the cue-distinctiveness experiments are applicable here—and the parallel is not exact—cue-distinctiveness might operate to help the Pseudo-training group most. One would predict that the P-group would excel the R-group, the opposite of what was observed, and so cue-distinctiveness seems incapable of accounting for the superiority of the R-group over the P-group on unexposed material. Cue-distinctiveness can also be ruled out on the same general grounds as learning-how-to-learn, because presumably any acquired cue distinctiveness would be laid down for the most part before the experiment started.

Earlier it was remarked that failure of the P-group to do better on exposed than unexposed (like the other two groups) seems inconsistent, and perhaps punishment cancelled out attensity effects for this group to some extent. If punishment is invoked for this inconsistency, punishment might also be invoked to explain the inferior performance of the P-group as compared to the R-group on unexposed material. Although punishment generalizing to unexposed items would be weaker than punishment associated with exposed items, it might serve to depress learning of the former to some extent. The best explanation for the total pattern of results is the punishment explanation, for it can account simultaneously for the difference between the P- and R-groups and the lack of difference within the P-group.

The most plausible mechanism which would cause learning of unexposed material by the Pseudo-training and Real-training groups is a set to learn this

material, induced during training sessions and persisting afterward. Ss given attensity training more often notice pertinent material when it is present in their environment. The attensity procedures direct Ss attention to this material, so that "trained" Ss tend to learn more of it than control Ss on vicarious exposure. Apparently non-specific procedures, common to many kinds of experiments, are efficacious in inducing learning.

*Relation of Attensity to Set.* The present experiment can be correlated with some laboratory experiments on set. Freeman & Englar (1955), for instance, find that set is an important factor in determining perception of low-frequency words presented tachistoscopically (but not high-frequency words). Compared to the total number of word-stimuli encountered by our Ss in their environment, names of cities and states must be low-frequency words, and therefore a set acquired by the P- and R-groups could be a factor in perceiving these words. Increased knowledge of exposed-list words for the R-group may come from extra-experimental learning also, for there is no guarantee that all of the learning of exposed items occurred during training sessions. Since unexposed items are learned extra-experimentally, there is ample reason to suppose that some exposed items may have been learned extra-experimentally as well. This point will be amplified later.

One fact needs emphasis: extra-experimental learning like that described here is not incidental learning, because incidental learning connotes lack of a set to learn. Work by Postman & Phillips (1954) concludes that perceptual isolation favors only Ss with a set to learn, and Jenkins (1933) previously found isolation effective only for intentional learners. In the present experiment, the control and both training groups are hypothetically encountering relevant material in their environment in "perceptually isolated" instances, but isolation is not helpful except for Ss with a set (the training groups).

Since material of this experiment is widely available in the environment, it might be questioned whether the findings are applicable to other materials less widely available, such as algebra. This point is not well taken however, because in some ways this experiment examines the set phenomenon under very unfavorable conditions. Teachers were asked to avoid the material of the experiment in their daily work during the experiment, and it seemed wise to use material not taught directly in the school. There is no reason to think, though, that sets would operate less effectively on stimuli later presented directly by a teacher (algebra instruction), or encountered outside of school (algebra homework).

The relation of this experiment to work on set prompts one to consider the role of a teacher as "set-arouser." The concept of set has not often been assigned operational referents nor implicated very specifically in accounting for schooling phenomena, and it might be fruitful to explore the teacher's function in this respect more thoroughly. Some teachers may be better than others in generating sets, or in causing students to perceive stimuli.

In this experiment the R-group learns one list of words by having both stimuli and responses presented (and no doubt reinforced), and a second list by having "thresholds" for stimuli reduced and encountering the stimuli and responses vicariously. Some Ss learn both lists about equally well, and in general the unexposed list is "learned" even though it may be hard to become exposed to the material. By arousing a set and allowing Ss to encounter material casually, a teacher could use some important learning principles efficiently. The supposed superiority of isolated stimuli has already been mentioned, and no doubt partial rather than 100 per cent reinforcement would prevail.

*Methodological Implications.* It now seems that the best method for generating attensity may be to give Real-training on a fraction of the material. Fractionation of the material (division into halves of equal difficulty that are disjunct for transfer) yields the very important additional information about leakage to the control group. This leakage is a kind of attensity effect in itself, and at times might exceed any pseudo-training effect.

Fractionation of the material increases precision by a) allowing establishment of a more realistic basal control level, and b) permitting estimates of extra-experimental learning. It is obvious that if all the superiority of the R-group is attributed to training, the effectiveness of training *per se* is seriously overestimated, but this is exactly what would be done if the material were not fractioned. In fact, to repeat a point made earlier, one could argue that only the excess of the exposed over the unexposed material can be absolutely attributed to training, because presumably there were just as many opportunities to learn the exposed as the unexposed material extra-experimentally. So *most* of the learning may be owing to attensity procedures accompanying the experiment, procedures common to almost any experiment of this type.

The estimate of attensity effects made here is a minimum in another sense: the posttest measures knowledge of 29 unexposed items only. There are other city-locations, not included in the test, that Ss might have learned but been unable to reveal.

Actually very little can be said with assurance about the magnitude of attensity effects. The differences observed in this experiment, although statistically significant, are "small" by any practical criteria. Yet their smallness must be weighed against the "smallness" of the training: three presentations of the 29 exposed-list items, widely separated in time.

Methodological refinements may permit more sensitive evaluations of some variables which up to now seem to make little difference in schooling. Equivocal results are often observed when class size, ability-grouping, etc., are studied, with overall school achievement as the criterion. This equivocality may follow from indiscriminate testing of intra- and extra-school learning. There is mild support for this idea from a recent report of Nachman &

OPOCHINSKY (1958), who demonstrate that class size, a variable often judged to make no difference, does make a difference when extra-class learning is carefully controlled.

*Psychological Basis of Schooling.* In much of the foregoing discussion, there has been implicit the more general consideration of the psychological bases of schooling. The gain by the Control group on material-exposed-to-the-R-group suggests that schooling may come about through forces extremely difficult to identify and measure. Also the gain by the R-group on material never shown to them suggests again the importance of "attitude" or other psychologic factors that interact with the "physical" variables manipulated in studying schooling. The parallel to the Hawthorne experiments is clear: after two years of experimentation the Hawthorne investigators concluded that it was not useful to think of work behavior as a response to physical conditions. Probably teachers have not conceived of school behavior as one-to-one responses to specified stimuli in the school, but persons studying education perhaps have tended to make this assumption.

But one should not lose sight of the positive function that some of the psychological factors may have. The Hawthorne experiments served to alert management to the fact that hours-of-work and wage incentives were not things in themselves, and that their effect could not be predicted apart from the total situation. What impressed management most were the astounding reserves of energy and cooperation which could be tapped under the right conditions. Similarly, in the school attensity factors appear to interact with other factors, and perhaps systematic investigation of attensity factors would permit teachers to mobilize more effectively than they can now some powerful resources to further the task of the school. This view is somewhat related to a theory of schooling proposed by STEPHENS (1956, 1960), in which it is hypothesized that non-deliberate factors may account for much of the schooling process. The present experiment can be interpreted as a "laboratory demonstration" of a non-deliberate mechanism like those invoked by Stephens. Many actions of teachers (perhaps not only actions resembling those studied in the present experiment) could be attensity-producing and could foster learning. Perhaps more attention to these attensity actions of teachers would contribute to a technology of education in which the uniquely human attributes of teachers could be used more fully and joined to the fast-growing body of principles relating to teaching machines.

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## *Book Reviews*

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*The Anatomy of Judgment*, M. L. Johnson Abercrombie. Basic Books, New York, 1960. 156 pp. \$4.50.

This book comes to grips with a fundamental problem of science education, i.e., teaching the process of making judgments or inferences about data. Psychologists and educators as well as teachers of science should read this account of an approach to teaching flexibility in thinking and observational acuity.

The author, who demonstrates an intimate acquaintance with the thought processes of students as well as with the literature on perception and cognition, theorizes that mental organizations which she calls "schemata" are the basis for perception and thought. Schemata make "re-recognition" of events and objects possible. The difficulty is that people have an inevitable tendency to impose schemata on stimulus patterns in such a way that they fail to "see" discrepant information or rationalize discrepancies away. The author argues that the tendency to see what we expect to see or want to see is not affected by traditional teaching methods, which simply add to the student's store of information. What is needed is a teaching approach that treats the process of perception.

The author has developed a "free group discussion method," modeled after techniques of group psychotherapy, which she claims decreases blind acceptance of conventional assumptions, increases consideration of alternative interpretations of data, and provides for a working through of subverbal schemata that have particularly insidious effects on perception. In a free group discussion students talk informally about some aspect of science suggested by an individual exercise completed prior to the group session. There is no chairman and no agenda. The teacher's "main task is to make it possible for students to compare and contrast statements they made with those that others made" and "to encourage spontaneity" (p. 76).

Medical students taking the free discussion course developed by the author seemed to distinguish description from inference, support inferences with reasoning and data, consider alternative interpretations of data, and show flexibility in thinking to a greater degree than control groups. The data do favor the free discussion method; however, conviction must be withheld because the evaluation was conducted very informally. "The commonest complaint" of students "was that the discussions were not sufficiently well disciplined, and that a lot of time was wasted . . ." (p. 128). The author interpreted this reaction as a manifestation of "the familiar difficulty of 'seeing' something new" (p. 129). It could be that it is the author who failed to consider alternative schemata. If the author were to analyze the free discussion method with the same rigor with which she analyzed the process of judgment, she might "see" that freedom is not an essential feature of the method. Despite the poorly justified emphasis on freedom, the discussion method emerged as an antidote to traditional teaching which might, indeed, cause students to observe and think more fruitfully.

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*How to Teach Foreign Languages Effectively*, Theodore Huebener. New York University Press, New York, 1959. 198 pp. \$3.00.

The word "practical" best sums up the modest purpose of this manual. For the classroom teacher faced with converting outmoded textbooks into meaningful verbal experience, it provides a wide variety of model lessons in French, German, Italian and Spanish, classified according to the ubiquitous "fourfold aim": listening comprehension, oral expression, reading and writing. The first half of the text sets forth the principles to be observed in attaining these goals and the general methods involved, and includes a number of "successful" lessons observed by the author, principally as supervisor of foreign language instruction in the New York City school system. Subsequent chapters deal with lesson planning, audio-visual materials, pupil activities, civilization, foreign languages in the elementary school, and evaluation. The whole culminates in a quintessential outline, "Standards for the Foreign Language Lesson," urging among other things that the teacher belong to the appropriate societies and write for professional journals while setting "a good example to the class in posture" and keeping desks "free from inscriptions."

The author proposes no drastic revamping of a widely accepted eclectic methodology. "Grammar-translation" techniques are condemned as a consistent or exclusive method, but elements of prescriptive grammar and of translation crop up time and again. Oral-aural activities prevail in theory, but in practice they often give way to the study of "new vocabulary" on application of the "rules" of grammar. These and similar conflicts derive from a fundamental inconsistency: theoretical objectives and procedures do not coincide with the classroom practices described. To call such practices "successful" is merely to affirm that the observed results on any particular occasion meet the aims defined for that occasion. In this sense a grammar-translation lesson may be just as successful as an oral-aural lesson. Moreover, a "unit" (a dialogue on time expressions, a verb drill based on pictures, a lesson on direct object pronouns, etc.) has purpose and meaning only as an integral part of a *program* of instruction and a *process* of learning.

Mr. Huebener neglects to fill the void between general concepts and isolated, fragmentary experiences; yet this is precisely where the most recent and the most significant re-evaluation of modern language teaching has taken place. Mr. Huebener deals pertinently with the *how to*. How to use the blackboard effectively, ask questions, lead choral exercises, construct dialogues, conduct dictations, introduce appropriate cultural materials: this is solid common ground. Mr. Huebener is at home on it; and his reader should be attentive to suggestions based on wide experience. However, they are not central to the problem of language teaching. For want of precise definitions of the *what* (a system of specific linguistic habits) and of the *why* (the progressive acquisition of these habits), a given technique may be immediately useful but ultimately futile or detrimental. Part of the difficulty lies, of course, in the attempt to reconcile general procedures and theories with the specific methods for teaching one aspect of a particular language. One cannot, for example, write a lesson plan for "the direct object personal pronouns," nor can a lesson on the Spanish pronouns really serve as model for a lesson on the French pronouns. Basic differences in linguistic structures (and, consequently, their different relationship to native verbal behavior) impose different orders of presentation, different modes of analysis and explanation, different patterns

of drill and practice, different forms of integration with what has been learned and what remains to be learned.

To get around this difficulty, Mr. Huebener constantly reverts to a definition of language in terms of rules, vocabulary and idiom and of language learning in terms of acquired knowledge. Initially, he seems to imply a definition acceptable to both the descriptive linguist and the behavioral psychologist: "To learn a new language means simply to acquire another set of speech habits" (p. 4); but the following sentence is disconcerting: "We learn through the observance of rules; we have mastered the language when the rules have been forgotten and speech has become spontaneous." Later pronouncements about "functional" grammar do not adequately counterbalance this prescriptive approach. Here, as well as in his later treatment of a simplified "recognitional grammar" (for reading knowledge) or of grammar in the traditional sense, Mr. Huebener does not make an adequate distinction between processes and results. Such a statement as "the idiom *gustarse* was learned and practiced" (p. 62), rather than *through* practice, is symptomatic. Instead of habit formation, language learning becomes synonymous with acquiring "facts," and this acquisition is accomplished by the simple expedient of "presentation." Subsequent manipulation of language facts leads to linguistic "skill." Whatever emphasis he may place on practice or on language patterns, Mr. Huebener encourages the teacher to consider presentation an end in itself and to treat language as a conglomeration of fragments to which convenient labels may be attached. Whatever the language teaching situation or the level of instruction, the essential process is the progressive acquisition of habitual responses, as determined by the structural features of a specific language, and their constant reinforcement. (Dichotomies such as learn-practice, active-passive, rule-idiom are simply not pertinent.) Explanations, rules or analogies, translation, contrast with English structure: all may contribute to the speed and efficiency of this process, but they do not define its result.

In one illustrative lesson after another, the itemizing of "facts" culminates in word or idiom lists. Yet "vocabulary" is equally incidental to the learning process. Unlike structural features, lexical items are unpredictable except in terms of a particular context. *Dog* may have a relatively high frequency in a conversation between two children about their pets, and a zero frequency in a book on language learning. The structure noun-verb-direct object is predictable in both cases simply because both involve English verbal behavior. Over-emphasizing words reinforces a habit, but the wrong one: the attempt to establish one-for-one relationships between English and the foreign language; whence the category of left-overs or "idioms" (which comprises everything essentially *foreign* about the language in question). The net result of such an attitude is a fundamental skepticism about the reliability of a foreign language as a medium of communication. Although Mr. Huebener urges the "frequent, constant, and almost exclusive use of the foreign language in the classroom" (p. 11), he cites far too many lessons in which the final exercises consist of translation—and this, after skillful use of all of the resources of a gifted teacher have already made structure and meaning clear in the foreign tongue. This is the fallacy that one can "know" or that one can test or demonstrate knowing only in terms of English, that language is knowledge and consists of equatable facts.

This pervading reluctance to cope with language learning as habit formation is epitomized in the author's treatment of the language laboratory. It is the

"best device in the way of a contrived experience" (p. 127), and, in the Bibliography, thirteen items dealing with it are mentioned. Still, Mr. Huebener devotes only two pages of his manual (a bit more than to flash-cards) to a teaching instrument which, if utilized properly, calls for a complete and drastic revision of the classroom procedures and activities with which it must be co-ordinated. The chapter on Audio-Visual Materials does not include an illustrative lesson on the language laboratory.

Ultimately, Mr. Huebener addresses himself to the language teacher who feels vaguely inferior about training a student to acquire a skill while his colleagues transmit knowledge. Having stated that "the linguistic aspect must remain foremost in any foreign language course," he gets down to cases: "the language serves merely as a vehicle for the study of the culture of the foreign people" (p. 9, *italics mine*). It should be pointed out that the "desirable outcomes" of teaching culture, as listed by Mr. Huebener (pp. 153-154), are highly commendable. However, they are secondary, not primary. Immediately practical terms and phrases, culture and language as a "social study," facts about language (*i.e.*, linguistics) and literature: all are or may be important features of a language course. They provide essential motivation (learning a language can be terribly hard work) and relate language to other activities important to the learner, according to his interests and the learning situation. A given content (practical or cultural or literary) has no absolute value, but rather an appropriateness related to circumstances. In a narrow sense, culture pertains to a language program only insofar as it facilitates language learning. When secondary aims become predominant, the practical man communicates through an interpreter, the social scientist consults English works about the foreign culture, and the humanist reads great books in translation.

It is perhaps unfair to dwell too long on the theoretical side of a practical manual. In his Preface, the author states: "Only such theoretical material has been introduced as has a direct bearing on the daily classroom activities of the teacher" (p. ix). But *most* theories about language learning and the nature of language bear ultimately on the activities of the classroom; and the more conversant with them the teacher is, the better. For "practical" purposes, limitations may be imposed, but not to the point of distortion. Every teacher is constantly faced with choices: of one method, one learning sequence, one unit of content, one motivation, rather than another. If he fails to choose, he can only consent to be led. Even then, he should not be given the impression that complex and fascinating problems can be reduced to simplistic listings of *three* major objectives (p. 3), *six* laws of learning (p. 4), *five* learning outcomes (pp. 4-5), *eight* "imponderable" outcomes (pp. 5-6), *five* advantages of the reading aim (p. 7), and *five* disadvantages (p. 7), and the like. In his attempt to provide a minimal conceptual basis for discussion of objectives and classroom procedures, Mr. Huebener has resorted to statements which are often over-concise, not to say inadequate and misleading.

No matter what the theoretical advantages of following a single method restricted to the immediate purposes of language teaching, change, variety and flexibility are, in the final analysis, practical necessities. The teacher anxious to enliven daily classroom activities will consult this manual with interest and will profit from its suggestions. The lucid teacher will know how to integrate them in a meaningful and consistent program of language instruction.

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*Comparative Studies in Administration*, Edited by James B. Thompson, et al.  
University of Pittsburgh Press, Pittsburgh, 1959. 224 pp. \$6.00.

Those who are interested in the development of theory in administration will be encouraged by the appearance of this publication. It is the first in a series on administration to be produced by the staff of the Administrative Science Center at the University of Pittsburgh. The book consists of twelve chapters, nine of which are reprints from articles originally appearing in such sources as *Administrative Science Quarterly* and *American Journal of Sociology*. Three are original chapters.

Outside of the fact that each of the reprint chapters (2-10) deals with some aspect of administration, the feature which ties them together is that the author of each employed the comparative method of gathering data. The reader looks in on administrative procedures as they are carried out in contexts such as two wings of the U. S. Airforce, U. S. and British cargo ships, surgical and medical wards in a large hospital, two industries in Norway, steel plants in United States and Germany, and in mines, hospitals, and universities in this country. One is led through a fascinating comparison of the dissimilar concepts of authority held by Europeans and the Fox Indians of the Central Algonkian tribe.

Members of the Administrative Science Center present original articles in Chapters 1, 11 and 12. In the judgment of this reviewer this book meets only reasonably well the criterion the authors set for themselves, namely, a contribution "from which more powerful principles of administration may be derived" (p. xiii). In his forward Litchfield tends to reinforce the reader's natural expectation that the editors will smelt the apparently rich vein of ore of the comparative studies, when he points out that so far in the social sciences in only a few cases "have we succeeded in achieving a level of generalization based on cross-institutional observation" (p. ix). Regrettably no attempt is made by the editors to remedy this deficiency.

Elsewhere in their preface the authors express the aspiration that their audience be not confined to the campus, but include "responsible administrators who find the time and energy to exercise their curiosities as well as their problem-solving abilities" (p. xiv). One can only wish that the editors had taken their own injunction more seriously to heart. Nowhere do they systematically undertake the kind of problem-solving they wish off on their readers. Where, in the opinion of the editors, do these nine comparative studies suggest, "turning points in the development of administrative science" (p. 10)? Why, after presenting the research studies, do the editors themselves not take occasion "to make crucial observations which differentiate weaker from more powerful theories . . ." (p. 10)? They state, "Studies of comparable phenomena can lead to greater generalization by way of abstraction, and this makes possible the comparison of competing theories" (p. 10). Again, why are there neither more highly integrated generalizations nor new hypotheses developed from these nine studies? It cannot be that the studies have nothing of this kind to offer, else why are they included?

This is to say that in my opinion a good book could have become an excellent one if the authors had invested more of themselves in it. The unquestioned competency of the authors is clearly indicated in Hammond's original chapter on "The Functions of Indirection in Communication" and again in Thompson and Tuden's original chapter on "Strategies, Structures, and Processes of Organizational Decision." These two chapters are as good or better than any

others that appear in the book. They alone make it well worth reading. What the staff of the Administrative Science Center has not done, however, is to abstract relevant meaning from the absorbing research which they present. In short, they seem to have passed up an excellent opportunity to make use of some highly promising material.

Enough, however, of objections. What is there in this volume to profit the educator? For one thing the sobering fact, pointed out by Litchfield (and one which bears much repeating) that whereas sophistication relative to the functioning of administration is rapidly developing in certain areas, notably industry, university administration represents the other extreme. Here "knowledge of the process, *per se*, is meager, both research and training are virtually nonexistent, and interest itself varies from a casual concern to outright distaste and distrust" (p. viii).

Hammond's suggestions for research on the question of legitimizing indirection as a form of communication (Ch. 10) proved to this reviewer to be especially rewarding reading. Hammond has drawn convincingly upon cultural anthropology to point out certain positive consequences which may follow the use of indirection in situations where direct communication might reasonably be expected to produce such undesirable consequences as withdrawal or overt aggression. Norms common to organizations within our Western culture would have to be modified in order for indirection to work. But joking and avoidance of tension-producing interactions, for instance, may indeed have a productive place in our institutional settings.

Upon reading Thomas's article on "Role Conceptions and Organizational Size" (Ch. 4) one wonders if conditions holding true in social work hold true also in teaching: "the smaller bureaus show greater commitment to the ethics of professional work, greater breadth of role conception, and better quality of work. To the extent that these variables reflect differences in performance of workers, the results indicate that the organizational goal of providing services to recipients was more effectively attained in the smaller welfare bureaus" (p. 65). Where do possible parallels within education lie? If the setting of the smaller community seems to produce these results for social work, as Thomas indicated, what, again, might be the implication for administrative operations within the schools?

Miller does a superb job (Ch. 7) of comparing two concepts of authority, namely the vertical (line-and-staff) relationships so common to Western cultures and the horizontal relationships characteristic of the Fox Indians of the Central Algonkian tribes. He points out some findings (pp. 111-113) that should hold uncommon interest for educators who are concerned with means for developing in learners more effective internalized controls of behavior and more self-reliant conduct.

Both "Technology, Organization and Administration" by Thompson and Bates (Ch. 10) and "Strategies, Structure, and Processes of Organizational Decision" by Thompson and Tuden (Ch. 12) deal with the processes of decision-making. The first article carries some intriguing insights relative to decision-making in universities. In this setting technology is internalized in the faculty. In mining, on the other hand, where technology is externalized in machines, a different structure for decision-making is more appropriate. In Chapter 12, which is the concluding chapter of the book, Thompson and Tuden introduce a model by which they are able to postulate who should be involved in decision making in organizations in which there exists agreement and/or disagreement

relative to the two variables of (a) the consequences of different alternative actions and (b) the degree of desirability or preference for the consequences. Four "pure" strategies, with corresponding rules or "constraints," are presented: namely, decision by computation (i.e., analysis of relevant data), by majority judgment, by compromise, and by inspiration.

This last chapter is rich with possibilities for improving decision-making in our organizations. The model, as the authors indicate, needs empirical testing. However, the problem is so important and promising as to merit a more elaborate treatment, enriched by illustration and clarification which the terse, bare-bone prose of the present paper precludes.

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*Work and Education: The Role of Technical Culture in Some Distinctive Theories of Humanism*, John W. Donohue, S.J. Loyola University Press, Chicago, 1959. 238 pp. \$4.00.

This book is apparently a popular version of the author's dissertation at Yale University. Its subject is the nature of work in several social theories. The first half presents and criticizes the positions of Marx, Dewey, and that expounded variously by Robert M. Hutchins, Mortimer J. Adler and Irving Babbitt. The second half, "Elements of a Christian Synthesis," offers chapters on "The Dignity of Work in Christian Thought," and "Toward a Christian Humanism of Work."

The introductory chapter is exciting. On the one hand, work has been looked at as an evil that is at best an unfortunate necessity and at worst sheer tragedy. On the other, work and the class that does it have been glorified as representing the essential nature of man and the only proper human activity. Is work punishment by, or collaboration with, God? Unfortunately, the promise of this chapter is not satisfied in the book. The expository materials in Part I are presented in a neat and thoughtful way, but do not offer anything novel to readers of this journal. Therefore, let us turn to the constructive effort in Part II.

The argument offered in Part II is unconvincing on several grounds. There is no adequate definition of the problem. Is it the position of work in the social, political, and economic organization; or is it the matter of one's attitude toward work, whatever the environment? If the first is meant in a serious way, one would expect considerable analysis of the major social questions. Even if the author restricts himself to Catholic social theory, he follows a distinguished history. The writings of Bishop Von Ketteler, Pope Leo XIII, and others are of first significance. However, he makes almost no mention of conflicts and alternatives to be found within the field. One need not refer to figures like Bishop Von Ketteler: he wrote in Germany in the second half of the nineteenth century, and the scene has changed. But he did raise pertinent issues about the relationships between Catholic views of human nature, private property, clergy in politics, laissez-faire economy, workers' cooperatives, voluntary and forced taxation, etc. A serious study of these matters needs to take some note, at least, of the kind of argument by which the Bishop holds that liberalism is anti-Christian.

The author does make some limited use of Pope Leo XIII's encyclical, *Rerum novarum*, and the work of Pius IX, calling attention to some of the

central papal positions. Unfortunately, the author mentions but hardly uses these for a vigorous analysis of social theory. For example, on the question of whether the exploitation of laborers described by Leo XIII in *Rerum novarum* is an inseparable part of "the western economic system," he merely quotes the remark of Pius XI that "... it follows that the system itself is not to be condemned. And surely it is not vicious of its very nature." (p. 169). This is called, accurately, no doubt, "the most representative Catholic thought," and yet the reader wishes that some attention had been paid to the views of other Catholic theologians.

On the other hand, if the purpose of the book is not a detailed analysis of the proper position of work in the social system, we can excuse the few quick strokes devoted to this and look for more analysis of individual psychology. However, we find little beyond the suggestion that both work and leisure must be put into a balanced synthesis and directed by religious feeling. One merely learns that "to work these objectives out in any detail is, of course, a knotty problem" (p. 193).

Nowhere in the book is there any attempt at precise analysis of the author's central concepts. We are offered broad phrases with little effort to separate assumptions, conclusions, and the trail from one concept to another. The preface suggests that in its original form the dissertation was a more technical and extended treatment. This leads to a question about the intended audience. The occasional pokes at Protestantism would need more detailed argument whether the book is intended for a general or a purely Catholic audience.

The "three theses" of the book are stated in the last chapter. These are: (1) "An adequate education for work must consciously envision a total life with its rhythm of labor and leisure unified by a religious outlook which penetrates and ultimately explains the highest function of both. The principles of this synthesis must be taught explicitly...." (2) "... This humanism of work calls for a division of responsibility. It ought to be the cooperative enterprise of several agencies and must proceed on different planes. For part of the task the family is especially well qualified, while other aspects are more easily left to the concern of the school." (3) "... The common school will itself approach work in two ways as it provides some understanding and some concrete experience of work's potential" (pp. 194-195). Perhaps this is so, but to be more than a vague preface terms like "ultimately explains," "calls for a division," and "provides some understanding" must be clarified. And one can hardly expect success here without some hard definitional work on the concepts of work, play, and education.

Does his system permit a concept of religious work? Indeed, yes, since any form of work "can also be a religious gesture" (p. 162). The author mentions that "God never commands the unreasonable" (p. 163); perhaps reviewers are not so restrained. Without denying the graceful style and class-room utility of such chapters as those on Marx and Dewey, one must express disappointment at not finding a more precise position that could be used as a foil for major works like Hannah Arendt's recent *The Human Condition*, or Paul Schrecker's *Work and History*.

SIDNEY AXINN  
Temple University

*The Changing Soviet School*, Edited by George Z. F. Bereday, William W. Brickman and Gerald H. Read. Houghton Mifflin Company, Boston, 1960. 514 pp. \$4.50.

*The Changing Soviet School* is the product of a unique collective venture. It is a readable set of essays presenting largely a digest of impressions of some 70 American educators who went to the USSR in the fall of 1958 in an attempt to make a field study of Soviet schools in action. The trip was made under the auspices of the Comparative Education Society, with the Soviet Union's Trade Union of Educational Workers acting as host. The participants of this traveling seminar represented the largest group of American educators ever to visit Soviet classrooms as a team.

The scope of *The Changing Soviet School* transcends the confines of a field survey. In discussing teaching in Soviet schools, the authors not only made wide use of Western studies on communist education but also explored extensively Soviet primary sources. In fact, many interesting analytical insights into various problems, such as the availability of facilities, the extent to which schooling is universal, the effectiveness of teaching methods, etc., are obtained by the authors in comparing what was observed and what was said by Soviet officials on the spot with what is generally known from statistical and factual evidence.

The topics range from abacus to zebra and encompass the Russian educational panorama from Prince Yaroslav's *Russkaia Pravda* to Khrushchev's educational reform. But the focal point is the Soviet school of the late 1950's. With such a polymorphous structure, it is difficult to judge which of the approaches—Soviet data, Western interpretation, or personal observations—is the real source of the book's strength. Indeed, some sections, such as Chapter 15 on "Education of the Handicapped," based almost exclusively on observation, are admirably done and full of first-hand insights. Yet by far the best parts of the book—Chapters 2-4 written by W. W. Brickman on the history of education in Russia and the USSR, Chapter 1 by G. Z. F. Bereday on the general setting of Soviet education, and Chapter 18 by G. H. Read on the general problems of character and moral education under communism—derive their excellence from research rather than from direct observations.

The task of the book is to acquaint the reader with Soviet educational practice as observed by the team. In recent years many positive judgments have been bestowed upon Soviet schools. The authors find that many of these judgments prove true, but nevertheless provide several candid analyses which pierce the Soviet educational colossus. On the point of the efficiency of Soviet school administration, they find a "lack of initiative on the part of [Soviet] agencies or individuals within agencies to improvise if a plan does not work in a given situation" (p. 138). Concerning the myth of Soviet educational opulence in terms of allocating huge resources to schools, they discovered that "laboratories, workshops, and special rooms are variously equipped. Some are extremely impressive, others astonishingly poorly supplied" (p. 192). There is little lavishness in Soviet school buildings; school rooms are small and barren. "The schools are scrupulously clean, but even the new buildings look old and dilapidated" (p. 191). Even a top priority feature of recent school reform, the introduction of polytechnical education, has met a stumbling block, for there is simply a "lack of finances" (p. 268) in most localities save for a few large industrial centers.

It is idle to argue that these impressions of shortcomings cannot be multiplied. No doubt the American visitors were shown the better Soviet schools.

They could not venture off the beaten track—to outlying rural one-teacher one-classroom schools, nor visit city schools not put on display by their official hosts. The dark side of the moon has even darker spots.

The austerity of the buildings and grounds is compensated, to some extent at least, by the social (if not necessarily purely material) prestige awarded to the Soviet teaching profession (pp. 306-07), the extensive education of teachers emphasizing the mastery of subject matter (70 percent of the pedagogical curricula, p. 299), the many welfare benefits offered to teachers through the Trade Union of Educational Workers, and generous grants for educational research (especially noted in Chapter 14, "The Academy of Pedagogical Sciences in Moscow"), and teacher retraining programs. The obvious scale of priorities is thus vividly revealed: the Soviet state has more interest in what is being taught and the quality of its teachers than in lavish buildings.

"He who does not work does not eat" is the motto of socialist society, and the purpose of the Soviet school is to make students work hard. In fact, the essence of Khrushchev's school reform is not only to make students work at academic subjects but also to teach them to love the joys of physical labor. The implementation of the latter is not discussed in *The Changing Soviet School* because the visit was made right in the midst of the educational reform debate. The debate, however, is pointedly summed up by the editors not only on the basis of official pronouncements but some on-the-spot observations on the controversy as argued by Soviet educators in 1958.

"Discipline" is the recurrent topic of the book. Discipline is a pedagogical must in the classroom, in the subjects of instruction, in teacher authoritarianism, in pupil behavior outside the school. "Achievement" is another phobia, be it in the classroom, in sports or other extra-curricular competitions (see especially Chapter 17 on "Education Outside the School"), and it is a goal sought by pupil and teacher alike. But the passive educational techniques of the Soviet school are heavily scored by the American observers. In regard to the use of traditional teaching methods, the learning process is evaluated thus: "No one thinks or reasons; he merely responds like a parrot" (p. 220). In regard to the alleged Soviet effort to surpass the United States in the teaching of foreign languages, the report indicates that there is "very little projection of speaking ability beyond the content learned in textbooks" (p. 239). How can it be otherwise? Few Soviet foreign language teachers have heard the language spoken by a native; they are not allowed to travel abroad; and the modern language laboratory is still totally unknown in the Soviet Union.

Another unseemly sight of the Soviet educational panorama is political dogmatism, which kills the vitality of creative thought, especially in the humanities and social sciences. It is evidenced that the Soviets make "strong use of history and social studies for indoctrination of the concept of Marxism...." (p. 225). The book does not devote sufficient attention to the most publicized aspect of Soviet education—the ubiquitous emphasis on the natural sciences on all levels of education, and therefore the authors do not draw parallels between the possible detrimental effects of political dogmatism in the physical as compared with the social sciences. But whatever the case, the authors emphasize that the Soviet teacher cannot be open-minded, for the only absolute truth, which they must expound to their pupils, is communist truth.

The result of this massive effort to capture the human mind is that: "Not only are Soviet citizens as loyal to their government as are serious citizens everywhere, but Soviet propaganda has convinced them that the government

is *their government*" (p. 13). Or so it appears to the outside observer. The concluding passages in the book attest: "Only when morality is raised to the level of free inquiry and free discussion, and man has the power to choose between alternative courses of action, can moral judgment free itself from conformity to prejudice, bigotry and propaganda. To equate morality with unquestioned obedience to a code of conduct determined by a totalitarian authority is to endanger the whole of moral life and the whole essence of humanity" (p. 449). Perhaps there are some Soviet citizens left who would concur with such a sentiment. At least we should not prejudge them entirely as blind because of the abnormal dose of political indoctrination to which they are subjected in the school.

*The Changing Soviet School* is enlightening and informative reading, for the specialist and the layman alike. Through a labyrinth of topics, the book carries a special message to all those who use (and occasionally abuse) the issue of the Soviet challenge and the "Soviet commitment to education." It drives home the maxim that education and the society which it serves cannot be separated, and that educational change cannot be understood without realizing the total complexity of a changing social order. In communist ideology, education is unmistakably viewed as a tool toward the achievement of communist goals, as a means to an end rather than an end in itself.

NICHOLAS DEWITT  
Harvard University

*The Small College Meets the Challenge: The Story of CASC*, Alfred T. Hill. McGraw-Hill, Inc., New York, 1959. 215 pp. \$4.95.

In March, 1956, President K. Duane Hurley of Salem College, Salem, West Virginia, was quoted in an article in *Time* magazine as saying that the smaller, non-accredited colleges of the country were caught in a vicious circle: "You need accreditation to get money, and money to get accreditation." Among other things, President Hurley was disturbed by the fact that these so-called "forgotten colleges" had, a few months before, been completely excluded from the financial benefits of the 260-million-dollar grant made by the Ford Foundation for the improvement of faculty salaries. In April of that year, a meeting was held in Chicago of a number of heads of these aggrieved institutions. Those in attendance proceeded to found the Council for the Advancement of Small Colleges, Inc. (CASC), with Dr. Hurley as its first President. In the volume under review, Mr. Alfred T. Hill, the Executive Secretary of CASC, undertakes to tell us about the work of this organization and its effect upon "a particular group of small but important colleges on the vast stage of American higher education in the mid-twentieth century" (p. 1).

As the author explains it, the member institutions of CASC had at least five major goals in mind when they formed their new organization. One of these was to attain regional accreditation. Another was to secure increased financial support. A third was to improve their own academic programs. A fourth was to increase their "visibility" to the general public by means of an informational campaign. And a final objective was "to conduct educational experiments appropriate to their own needs" (p. 6). Mr. Hill believes that CASC has been notably successful during its first three years of existence in promoting all of these purposes and that, in so doing, it has helped to meet the challenge of the

crisis which confronts American higher education as we enter the 1960's. As he puts it:

The individual members of the council have felt that their organization has been helpful in assisting them to achieve regional accreditation, raise money, increase enrollments, become better known, and to improve their academic programs.

From the national point of view, however, perhaps the greatest contribution CASC has made to date is to call the attention of the public in general and a number of key foundations, corporations, and individuals to the potentialities of this undeveloped resource. (p. 12)

In the course of his discussion, Mr. Hill lists a number of important questions with respect to the role of the small CASC colleges. Do they really have any justification for existence? Wouldn't they do better to become junior colleges and thereby join a growing national development in higher education? Is there any real virtue in smallness, or does smallness merely tend to perpetuate mediocre teaching on inferior campuses for students of limited academic ability? Can small colleges contribute anything worthwhile toward experimental education or is it necessary that important experiments be conducted by larger institutions with greater financial resources? Are small colleges efficient operating units? Wouldn't it be better for them to merge and consolidate their activities?

While the author is to be complimented for the frankness with which he sets forth these disturbing questions, it does not appear to this reviewer that he succeeds in answering them convincingly. It is not made clear, for example, why small size *ipso facto* creates a situation in which educational experimentation and pioneering is more likely than in larger institutions. Despite Mr. Hill's repeated assertions that this is so, the evidence he presents indicates that Goddard College in Plainfield, Vermont is the only school in the whole CASC group of sixty-five which has a program that may be described as genuinely unique and experimental. Such results should not surprise anyone. There may be more resistance to change on provincial, isolated, inbred campuses than in the dynamic academic settings of cosmopolitan urban centers or large university towns.

Again, it seems to be a principal thesis of Mr. Hill's book that the small, private CASC institutions represent a type best equipped to combat in higher education the evil effects of the conformity of our time. But there is no more proof presented for this assertion than for the previous proposition. Why, as a matter of fact, should an academic atmosphere fostering bold originality and individualistic non-conformity be tied to *size* of enrollments? The reviewer attended a large municipal institution in the 1930's, a publicly-controlled college with an enrollment in the thousands, and he can testify personally to the ferment of non-conformity which agitated that "Alma-Mater-on-the-Subway." A related factor is suggested by Mr. Hill himself. His volume makes it clear that ninety per cent of the CASC colleges are church-related. At some of these institutions there is undoubtedly as much academic freedom as anywhere in this country, but one wonders how much opportunity for non-conformity is granted at others, particularly non-conformity to the concepts and general outlook of the church which happens to be the supporting and con-

trolling force. And if teaching and learning are not entirely free of such sectarian preconceptions, as of all other confining inhibitions to the pursuit of truth, how "liberal," we may well ask, is such "liberal education"?

Most questionable of all, however, is the author's main proposition which implies that it is preferable (and, incidentally, more "economical") to build up existing small colleges of the CASC-type to meet the challenge of mounting enrollments rather than to expand further the larger, better-equipped, more centrally-located colleges and universities. On the basis of the evidence presented in this volume, there seems to be no good reason for endorsing any such policy. One CASC institution, St. Joseph's College of North Windham, Maine, is listed as having an enrollment of 80 students. Another, Marlboro College of Marlboro, Vermont, is reported as having a total enrollment of 50. While these examples admittedly are not typical, a number of other members of CASC report enrollments under 300. The question that the great American educational leader and reformer, Andrew Dickson White, asked some eighty years ago is just as pertinent today as it was in his time. Can a nation as vast in size as the United States of America afford to disperse its available funds for the subsidy of the higher learning among many small splinter institutions, some being necessarily of highly questionable calibre and potential? Or, to put it another way, in an age when a life-or-death competition with the Communist world makes imperative the swift raising of standards of academic quality so that we can secure the best possible training of our best brainpower, should we not concentrate our support upon the upbuilding of the thirty or so truly great universities which it may be possible to create in this country? Perhaps, in the long run, this may prove to be the greater "economy" in terms of national survival.

Mr. Hill quotes from a speaker at a CASC workshop, President Gould of Antioch College, who warns of four difficulties standing in the way of the upgrading of small non-accredited colleges. These include, according to President Gould, the difficulty of getting the faculty actively involved in schemes for improvement, a general reluctance to change, the lack of financial resources to underwrite desired projects, and the generally poor quality of the student body (p. 51). In view of obstacles such as these, which CASC itself seems to take into account, it would appear to be the part of wisdom to concentrate our energies where they promise to do the most good rather than willfully to dilute, and in some instances even to dissipate, them. To this end a heartening approach in recent times has been the voluntary federation of independent colleges by interinstitutional arrangements as in the examples of the Claremont College group in California, the Haverford-Swarthmore-Bryn Mawr group in Pennsylvania, the joint university library in Nashville, Tennessee, and the compact among a number of colleges in central Massachusetts. By coordinating the efforts of a number of smaller high-quality schools and avoiding uneconomical duplication of services, such regional plans would seem to possess a greater potential for strengthening and elevating American higher education than the approach of CASC.

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*Sociometry in the Classroom*, Norman E. Gronlund. Harper and Brothers, New York, 1959. 331 pp. \$4.50.

This is a book written to help teachers use sociometry as an adjunct to their classroom methods. The idea underlying the work is that sociometric methods, in combination with other educational procedures, can help the teacher understand the social relations of the classroom and the social development of individual pupils, and assist her in guiding students and in forming classroom groups that are beneficial to them.

The contents of the book are well balanced. The section on methods and techniques of analysis is followed by a careful treatment of data interpretation. Discussed at length are reliability, validity, and the personal and social factors related to sociometric results. Finally, the author expatiates in detail the application of sociometric results to educational problems.

The author does not spare any effort in forwarding the idea that sociometric data are susceptible to a great many factors. Thus what criterion is used and how many choices are permitted are considered in great detail in terms of what consequences alternative decisions might have on the outcome of the test. Not given the attention it deserves is the relationship the teacher has with the pupils and its effect upon sociometric results. This issue merits some discussion, even if (as is the case with other topics discussed in the book) little empirical documentation exists on it.

There are some other places where the reviewer felt more should have been said. Neglected, for example, is the possibility of using a combination of free and fixed choices, so useful in keeping the door open to statistical analyses, yet generating information on such variables as social expansiveness.

Probably because of the reviewer's own interest and work in dyadic analysis of sociometric data, it was felt that more should have been said about this, too. Proctor and Loomis refer to it in *Research Methods in Social Relations* (Jahoda, Deutsch and Cook, Editors, 1951). The reviewer has discussed it in several papers.

All along, care is taken to distinguish the sociometric data from the "actual" relationships among pupils. This distinction is, of course, crucial for a sophisticated approach to any form of measurement. Thus Gronlund reminds the reader that one should not confuse the social relations represented by sociometric data with "actual relations among group members" (p. 77). Glossing over the questionable reference to "actual" relations (whatever these might be), the author himself, however, slips occasionally. He writes, for example:

... isolates appear at all grade levels. It might be assumed that after attending school for a period of time every pupil would receive at least one choice as a desired associate. *Apparently just being a member of a group does not assure acceptance by the group* (p. 96, italics by the reviewer).

Or, one reads that "the sociometric test measures the extent to which individuals are accepted by other group members . . ." (p. 21). Here perhaps it would have been wise to say "the relative extent." It is not easy, however, to write simply and clearly as Gronlund does, and yet keep close to the operations used in obtaining the data.

One of the most undesirable consequences of a good exposition of a methodology and the action implications of its results is that it tends to produce

pseudo-experts. In social and personality psychology this is definitely to be discouraged. Yet, without some selection and interpretation by the experts it is very difficult for others to benefit from available technical resources. Gronlund's book will, inevitably, produce the less desirable result in some cases. But for those more interested in understanding the child than in playing the expert, for those, that is, who will read carefully what is in the book, Gronlund has exposed a good many of the complexities and uncertainties of the use and interpretation of sociometric methodology. A balanced interpretation of method, analysis and results, though placed in the school setting, this book is not only for teachers, but for anyone who wishes a good overview of sociometry and its applications to children.

RENATO TAGIURI

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Harvard University

*Developmental Psychology*, Florence L. Goodenough and Leona E. Tyler.  
Appleton-Century Crofts, New York, 1959. 552 pp. \$6.00.

This third revision of a textbook for college students who have had no previous courses in psychology is worthy of attention. It reflects the growing importance of the developmental approach; it even "comes off" as an introductory text for the whole field of psychology; and despite the fact that we can hardly claim an inclusive, soundly tested theory of the human life span, psychologists will feel comfortable about and perhaps even proud of what Goodenough and Tyler have accomplished here.

Chapters are short and clearly written. By skillfully raising provocative questions at the beginning of each chapter to help the student take an active role in reading the material, the authors show that they have taken to heart their own excellent prescriptions on how-to-study. (The chapter on learning and retention in middle childhood is one of the best condensations of all that psychology has to say on these matters.) The enticing description of a single book at the end of each chapter seems more likely to stimulate students to read beyond the text than more customary listings of titles. It is true that some of the works thus highlighted are not the ideal choices. But this is a minor complaint.

The presentation of data is succinctly done and soundly translated from original works. The naive reader will not recognize how painstakingly these bridges from research findings to basic English have been built, but he will get the message that caution is needed in speculating from the many specific studies described. He will also gain considerable grasp of methodological enigmas and unsolved problems of research design.

A great deal of knowledge is given in the areas where there is relatively clear information to impart—sensory and physiological functions, genetics, motor development, learning and maturation. The considerable material on mental testing scattered appropriately throughout the book is uniformly of exceptionally high quality. (Woe be unto the school system that treats a parent who has mastered this volume as untutored about mental testing!) Occasional forays into the newer fields of personality measurement and psychotherapy with children are less well done. They may even be misleading because in contrast to the sections on mental tests too little information is presented.

The two chapters on adulthood seem thin, yet one cannot hold the authors responsible: these years have been of less interest to psychologists until very recently, and this book conveys the fact that much remains to be learned about how people normally cope with the decisions, problems, stresses and delights of the adult years. It is not the authors' fault either that the painstaking work on prenatal development has not led to fruitful "laws" for understanding the human life span. At least they present the facts in such a way that the chapter is interesting in its own right.

One can wish they had given more emphasis to theories of personality development that hold promise. Some things, after all, are fairly well established about such topics as identification, the development of conscience, the impact of certain child-rearing techniques, and how we learn to defend ourselves against guilts, anxieties, anger, and sexual needs. Certain of these matters are mentioned in passing, to be sure, but none of the exciting theoretical thinking about them is presented. One misses, too, any reference to the stimulating speculations of Anna Freud on *why* the adolescent so often becomes engrossed in religious ponderings, philosophical gropings, and episodes of extreme altruism. Nowhere is there a discussion of the concept of character disorder, so that their otherwise excellent, lucid chapter on maladjustment is oddly dated.

In general, the richness of human fantasy life is ignored; yet when speculations are given about how the young child first learns the power of words, or what he is doing from his point of view when he begins to draw pictures and to learn certain simple skills, or how the older person may feel about himself as he moves from a period of "expansion" to "maintenance" and "decline," the points are vividly made. The sections on aging make especially fresh reading, and in bringing together what recent data are available here, the authors make good on their promise that at this stage, too, the developmental approach is appropriate.

There is a kind of robust, hearty bias in favor of activity in this book that is not prominent enough to be irritating. Intellectual brightness is depicted in terms of zest in doing and vigorous searching out of new experiences. The bright child creates new experiences and "bends them to his will." The healthy person is also a doer. One who participates, who learns to play the games, develops the skills to have hobbies, and "stops brooding when he should be doing something worthwhile," is better "equipped for holding his own in the active competition of adult life." One should be "unemotional" about one's difficulties and "valiantly strive" to reach one's goals. "Definite effort is necessary to get rid of habits practiced for years." "The person who can take the helm of his own life and steer it in the direction he wishes to go will get more from his college experiences. He will also make more out of life."

But who can object if these two wise women indulge in a few exhortations to their college sophomores? The indisputable competence, solidity, and broad perspective on the entire field of psychology provided by this text merit respect and praise.

BEVERLY B. ALLINSMITH  
Concord, Mass.





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# HARVARD EDUCATIONAL REVIEW



*Education and American History*

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## Information for Contributors

The *Harvard Educational Review* is a professional quarterly for the publication of articles dealing with concerns of education. These concerns are not merely the problems of schools; they are also those of the society which brings schools into existence. The *Review* therefore welcomes contributions, not only by scholars and research workers in education, but also by persons who are working in related disciplines and professions.

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THE EDITORS

## Introductory Note

OSCAR HANDLIN  
*Harvard University*

THE RECENT REVIVAL of interest in the history of American education as a subject for research and teaching promises to fill a serious gap in our knowledge. This hitherto neglected topic ought to form one of the central themes of American history without a command of which our understanding of our culture is incomplete. By the same token there is no doubt that the experience of the past can throw useful light on the educational problems of the immediate present.

The backwardness of this field until now was due to factors general to American historiography. Historians have sometimes been tempted to ascribe this lag to the dominance over the subject by educationists whose narrow professional interests gave them a restricted view of it. But more important general forces were also at work. The modes of treating this field took form at the beginning of the century when American historians, absorbed by the scientific assumptions of their times, proceeded to divide the material of the past into compartmentalized institutional segments. Each institution was treated as if it were autonomous and more or less self-generating. In that respect the history of education was no more parochial or narrow in its point of view, although perhaps less well-written, than the history of politics or of the economy or of religion.

The breakthrough in the history of education, as in other fields, has come recently through a process which has risen above the limitations of institutional perspective. At the point at which historians began to look at the educational process, rather than at the school, they were compelled to consider a broad range of relationships to the totality of culture. The most promising developments have come through viewing the history of education as an aspect either of social or of intellectual history. In the first context, the acculturation of a child is examined against the background of the environment within which he grows to maturity, and education is regarded as the process of transmitting to him the techniques and attitudes of the society in

which he lives. In the second context, the emphasis is upon the subject matter which is taught and the broad intellectual forces that help to form it. Both have in recent years provided a basis for useful achievements.

We must not however exaggerate the net effect of what has already been accomplished. The problems of the field have only begun to be exposed; they are far from being resolved. It may be helpful therefore to outline some of the difficulties that will confront those who work in the history of education in the future.

Periodization, for example, will become increasingly complex. As long as the system of education was treated in institutional terms, the formal development of the schools set convenient limits of analysis. Such events as the appearance of the academy, the common school or the high school, readily supplied a framework of chronological periods. But if significant educational changes are to be connected with such forces as romanticism, or industrialization, the categories of analysis must be freshly designed.

The problem of phasing also becomes critical. Looking back over the span of American history, we readily pick out such long-term trends as the westward movement, the growth of population, urbanization, the transformation of the family, and the quantitative increase in educational facilities. These trends extend across very long time intervals. At whatever point one chose,—1650, 1700, 1750, or 1850—one could equally well write about the advance of settlement, the rise of population and of the city, the growth of enterprise, and the increase in the number of schools. Indeed, monotony emerges from many such histories.

Yet, it is clear that if education was always improving and the city always rising, there must have been differences in the significance of the change at various periods. It may be that such differences can be described in quantitative terms: how much improvement, how much rise at any given time? Or it may be necessary to make qualitative distinctions: the character of the decline in the Puritan family of the 1680's may well have been essentially different from that in the family of the 1880's, and the effects upon education correspondingly different.

It will also be necessary to establish more intimate causal connections between the broad social and intellectual trends and the developments within the educational system. In the past we have been relatively content with general schematic correlations. We can no longer be content simply to join free land and free schools and to assume that the two were connected. It will be necessary to explore far more intensely the nature of the relationship between such contemporary phenomena if we are to understand either adequately.

Finally, in the pursuit of the broad and general context, we must not neglect the history of the institutional forms of education or the history of

the child who was its subject. By affirming that the institution cannot be understood except within its context, we certainly do not intend to imply that only the context deserves attention. We need far closer examinations, within the context, of the details of institutional development which in the process will acquire greater meaning.

# The Education of History: Some Impressions

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## I

THOSE WHO DEAL with education historically have a choice to make. The historian, with or without portfolio, may work deductively, as it were, by defining "education" precisely at the outset and then proceeding to trace the fortunes of the thing defined. The product of his study will be a documentary account of education as it is contemplated by philosophy, psychology, anthropology, sociology, or whatever else is the matrix of the original definition. Or he may try his hand at induction, examining the whole record of human experience in an effort to discover an ingredient of it that can sensibly be described as educational. He may follow many lights—and some hunches—through the sources, in pursuit of something that he will not identify fully until the end of his research. It will itself be an approach to definition. The historian will seek the education of history in the same sense that a biographer sorts through masses of material on America before 1865 to find the Lincoln of history as distinct from the Lincoln of poetry, drama, and oratory.

I leaned heavily toward induction during a year of exploration across a wide sector of the institutional terrain of the United States. Although I entered it with a more or less expert knowledge of higher education and some familiarity with the history of schooling, portions of the history of education as a whole were, for me, *terra incognita*. I sought out institutions and activities which had been designed to close the gap between the actual and the potential capabilities of the young by regulating and amplifying the experience of growing up. Because of the limitation of time, adult education had to be neglected. Like the first geologists to study the West, I attempted to survey the dominant formations of a large area and so did not linger at any one spot to do exhaustive research. From time to time my line of march lay along well known paths, but it frequently departed from them. To break out into the open country of social history was, I found, to receive impressions and to

encounter questions which have a significant bearing upon the study of the history of education and upon the nature and role of education itself.<sup>1</sup>

The sheer variety of the landscape is striking. Neither the commonplaces about the heterogeneity of American education nor the sometimes very rich accounts of particular segments of it prepare one entirely for what one sees. The impulse to shape the young through some process of formal or informal instruction has erupted in seemingly numberless ways and directions to create what appears at first to be a wilderness of diverse institutions and activities. There in the historical record is the evidence of the survival of putatively medieval English custom, of American variations of Tudor-Stuart legislation and philanthropy, of the labors of the Philip Fithians, of the peripatetic dancing master with his evangel of courtly deportment, of the false dawn of "national" education, of the spontaneous nationalism of the college literary societies, of Christian Nurture and the early mothers' clubs, of the Rollo books, of Horace Scudder's crusade for the literary classics as reading for children, of William Augustus Muhlenberg's prescription for private schooling, of the common school movement, etc., etc., to the Dewey School, Camp Dudley, the settlement houses, and the manifold activities of the modern youngster. Each of these things has its own individuality as a product of time and place, which is to say that each is a fragment of history. Each has its nuances of coloration and its subtlety of contour. The question arises: have we done justice in our thought about education to this variety of endeavor and to the integrity of the enterprises that constitute it? In this connection, justice demands the exercise of a very keen sense of the concrete, a sense that bears the same relation to an antiquarian love of particulars that uranium does to lead.

The landscape is bewildering because it has yet to be adequately mapped. Fortunately we have shelves of books on certain institutions, notably the schools and colleges; but we lack a substantial body of writing about the connections between many of the institutions that impinge upon the life of the young. Thus exploring education resembles a trip across the United States without benefit of an atlas; we see the high points in the foreground and remain ignorant of the lay of the land between and behind them. In time, the explorer does of course gain some impression of the terrain around him, of the location of the dominant ranges, and of the orientation of underlying strata. He will notice that many of the great educative institutions lie across and not along the conventional boundary lines of education. Exploration confirms the findings of the most casual observer, e.g. the public library crosses the line between books for children and adult education and extends,

<sup>1</sup> I am in debt to a number of scholars for stimulation and guidance, especially to Professors Bernard Bailyn, Lawrence A. Cremin, Merle Curti, Oscar Handlin, and Arthur M. Schlesinger, Sr.

in many instances, into the province of diversion. Art museums continue to provide recreation to men and women with tastes already cultivated, but they seek to become informal schools of popular taste. In 1917, Benjamin Ives Gilman, Secretary of the Boston Museum of Fine Arts, argued at some length and with much feeling that an art museum was not an educational institution but rather an aesthetic institution with educational uses and demands. The distinction suggests that the institution actually straddled a line between two kinds of effort.<sup>2</sup> By warrant of common usage, the public school belongs wholly within the realm of education; but in actuality, it is asked to perform more and more tasks that amount to the policing of a particular age group. And the family is at once an educational institution and an asylum for persons too young to fend for themselves. Formal distinctions here appear to be as arbitrary as the 49th parallel across the Rockies.

But are there no natural boundaries to be detected? The case of higher education illustrates an impressive fact. In the formulation of the idea of a university, it is possible to speak of a fissure between instruction and research; but in examination of many actual universities, it is vain to look for such a clearly defined cleavage. Was Herbert Baxter Adams' seminar at the Johns Hopkins the finishing line of a course in method or the starting point of careers in research for men like Frederick Jackson Turner? The simple answer would seem to be that the seminar was both: training merged into the pursuit of knowledge itself. Mixed agencies like this often appear somewhere between programs of instruction and other activities. Physical education is conspicuously (and sometimes notoriously) ambivalent. It is easier to draw a logical distinction between physical culture and competitive sport than it is to detect the precise line between the two in day-to-day college life. Here and elsewhere, transitions are gradual. What one observes is not so much a well marked frontier as a more or less wide band where intentions fuse to produce activities which have an educational aspect but cannot be rightly described as education, pure and simple.

This phenomenon of fusion is an inescapable and perplexing one for the historian examining the arts as vehicles of education. It is decidedly arbitrary to study history textbooks, which may contain much fiction in the dress of history and to ignore the fictionalized history of the Henty books. Surely the ten-year old boy is no respecter of boundaries here. These and other stories slope without a break toward the novel of pure entertainment or of pure art. It appears that the field of the historian of education has no definite limit in some quarters of the compass. "Field" is indeed an often inappropriate word: the historian's mission is not so much tied to a jurisdiction as fixed by a point of view across many fields of endeavor. For him, the operative form of "edu-

<sup>2</sup> Benjamin I. Gilman, *Museum Ideals of Purpose and Method* (Cambridge, Harvard University Press, 1918), pp. 89-109.

tion" is the adjective rather than the noun. He deals with educational purposes and effects rather than with an entity which can be recognized by association with any particular institution. In the language of chemistry, he looks for valences. Of course it is necessary to set some limit to the scope of a given piece of writing and to establish some conventions for the division of labor in research, e.g. the history of higher education and the history of schooling. The question is if existing conventions do not balkanize our thinking in violation of some important continuities in actual practice.

## II

Educational institutions do differ, however, in design and in practice. Formal education is often a bumpy incline of experiences despite all efforts to make it systematic. Obviously the universities had acquired a style of their own before system became a desideratum of organized education, and many of them retain more than a vestige of their traditional autonomy and with it an influence which is not simply an extension of that of the lower schools. Obviously, too, discontinuity between them and the college is the source of endless controversy among educators and of numberless shocks of joy or pain for the youngsters being educated. Education as a whole has its great divides. To read widely in the American literature and its older, European counterpart is to come upon evidences of an awareness of crucial alternatives. Students of education have felt an abiding interest in certain options between basic institutions as well as in the choices to be made within any one of them. The essence of the discussion is virtually a paraphrase of the cardinal issue before political economy: given the raw material of human talent, great and small, and the cultural capital of civilization, how are the two to be brought together to the end that the intellectual and moral wealth of nations may increase most abundantly. It is hardly borrowing to call this a question of economy: in its origins education was, like industry, a part of household management. John Dewey put the matter in its broadest terms: ". . . one of the weightiest problems with which the philosophy of education has to cope is the method of keeping a proper balance between the informal and the formal, the incidental and the intentional, modes of education."<sup>8</sup> Most frequently, however, the alternatives presented are education in the family and schooling. The *locus classicus* is Quintilian:

But the time has come for the boy to grow up little by little, to leave the nursery and tackle his studies in good earnest. This therefore is the place to discuss the question as to whether it is better to have him educated privately at home or hand him over to some large school and those whom I may call public instructors.

<sup>8</sup> John Dewey, *Democracy and Education* (New York, The Macmillan Co., printing of 1926), p. 10.

After considering the moral dangers of the school, Quintilian voted for it on the grounds that the family was even more dangerous than the school: "Would that we did not too often ruin our children's characters ourselves!" The specification of Quintilian's charge reads like an epitome of the preachments against the decadence and perversion of Imperial Rome. The child crawls across purple rugs toward corruption.<sup>4</sup>

Near the beginning of the modern era, Comenius also measured the family against the school and found for the school:

Having shown that those plants of Paradise, Christian children, cannot grow up like a forest, but need tending, we must now see on whom this care should fall. It is indeed the most natural duty of parents to see that the lives for which they are responsible shall be rational, virtuous, and pious. [Several verses of Scripture follow.] But, since human occupations as well as human beings have multiplied, it is rare to find men who have either sufficient knowledge or sufficient leisure to instruct their children. The wise habit has therefore arisen of giving over children, for their common education, to select persons, conspicuous for their knowledge of affairs and their soberness of morals.

Specialization was the rule of nature and of the functioning of the human body: "And therefore, as workshops supply manufactured goods, churches supply piety, and law courts justice, why should not schools produce, purify, and multiply the light of wisdom, and distribute it to the whole body of the human community?"<sup>5</sup> Presently John Locke was to deal with the same issue but to a different effect.

What shall I do with my son? If I keep him always at home, he will be in danger to be my young master; and if I send him abroad [i.e., to school], how is it possible to keep him from the contagion of rudeness and vice, which is so every where in fashion?

Locke was aware of the inconveniences of both courses, but he argued emphatically for education in the family. Although he believed, with Quintilian,

<sup>4</sup> Quintilian *Institutio Oratoria* I. ii (H. E. Butler translation, 1921), pp. 39, 43.

<sup>5</sup> John Amos Comenius, *The Great Didactic*, trans. M. W. Keatinge (London, A. and C. Black, 1896), pp. 213, 216. The metaphor of the garden and the argument from specialization are perennials in the literature. See "Report of the President" [E. G. Halle] in the *Forty-Third Annual Report of the Board of Education of the City of Chicago* (Chicago, 1897): "Menticulture and its environment have unsurpassed attractions for those, aside from the student, who are brought in contact with children.... Only the landscape gardener can fittingly array the beauties of nature. His skillful hand brings the richest tones to blooming springtime, the blossoms of summer in greatest profusion from earth formerly unadorned, and so it is our teachers have found treasures in child-nature requiring only their magic touch to cause that intellectual awakening destined to effect a higher standard of citizenship and promote a more comprehensive recognition of the responsibility resting upon the individual." President Halle added that teachers shared with the mothers "the guardianship of our national honor and welfare." *Forty-Third Annual Report*, pp. 11-12.

that parents were prone to be overly indulgent with their children, he thought that to send a boy away to school was to sacrifice his innocence to the attainment of confidence and skills that were better acquired elsewhere. It is clear that Locke put a premium upon the preservation of innocence because he was convinced that vice ripened "so fast now-a-days." English courage was decaying: in the spirit of the Americans who have worried over the behavior of some soldiers in Korea, Locke referred to some recent actions at sea, "of a kind unknown to our ancestors. . . ." <sup>6</sup> Later, Adam Smith was also to be concerned about the corruption of courage. He did not dwell upon the family as an educational institution; but he based his argument for compulsory public schooling upon the inability of most parents in a civilized society and indeed of ordinary living to provide adequate education. In barbarous societies, "as they are commonly called," every man was a warrior and a jack of all trades. His necessary occupations educated him. In civilized societies, where labor was divided, the employment of most men was confined to a few very simple operations, frequently to one or two. The uniformity of life stupified the mind and corrupted its courage, as well as the body. Hence the need for education outside the occupations, i.e., schooling.<sup>7</sup>

Locke's thoughts on education are a reminder that the debate over "public" and "private" education once had a very different point from that of discussion of today. Until well into the 19th century the great alternatives before an Englishman writing on education were domestic (hence "private") tuition and instruction in any school open to a miscellaneous group of applicants (hence "public"). Americans do not appear to have engaged as persistently as the English in explicit controversy over public and private education in the older sense, but they have weighed the family and the school in the same scales. In his funeral oration for Ezekiel Cheever, Cotton Mather contemplated the place of pastors, schoolmasters and mistresses, servants, and parents in the religious education of the young; and he asserted, with more candor than tact in view of the occasion, that the matter belonged chiefly to the parents.

None, I say, None are so much concerned as *Parents* to look after it,  
that their *Children* be taught the *Knowledge of the Holy Scriptures*.  
. . . I am to press it, That *Parents* give their *Children* all the learning  
they can; especially that which will bring them to *Know Christ and*  
*Live Happily*.<sup>8</sup>

No less forcefully than Horace Bushnell did Mather argue for an early start upon the spiritual rearing of the child.

<sup>6</sup> *The Educational Writings of John Locke*, ed. John W. Adamson (Cambridge, 1922), pp. 49, 53-54.

<sup>7</sup> Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. Everyman (London, J. M. Dent, 1930), II, pp. 263-267.

<sup>8</sup> Cotton Mather, *Corderius Americanus* (Boston, John Allen, 1708), pp. 11-13.

Christian Nurture in its maturity was of course founded upon faith in the implicit education of a wholesome family rather than upon verbal indoctrination. Frederick A. Packard, a leader of the Sunday School movement, wrote specifically of the relation between domestic influences and the impact of schooling:

The manners, habits, tastes, associations, and aspirations of the million (that do not originate *at home*) are to be traced directly to the daily public school: and no person of observation or reflection will deny that one of the most important functions of the institution is, or should be, to counteract the influence of ill-governed, thriftless, and immoral homes.

The school was, however, a comparatively subordinate agency of the education of a generation:

Undoubtedly by far the largest share of the work is done AT HOME, and that too not by direct intentional methods, but by the numberless incidental influences which act upon the minds and hearts of children as silently and mysteriously as light and air upon vegetable life. No one can look back upon his own childish days, however happy his home, without being reminded of a multitude of instances in which some paragraph in a book or a newspaper; a picture, anecdote, or a song; a conversation overheard in a shop, a bar-room or at the street corner; a scene or a suggestion of mischief—made a far deeper impression upon the mind and character than a month's, nay, perhaps a year's schooling.

Who knows the individual hour in which  
His habits were first sown, even as a seed?  
Who that should point, as with a wand, and say,  
*This portion of the river of my mind*  
Came from *that fountain: that from this?*<sup>9</sup>

Such awareness of an alternative to schooling might appear to be nothing more than a product of conservative concern over a kind of education which the public schools of a religiously heterogeneous society could not pretend to offer except in doctrinally neutral tones. Yet one of the great reformers, Henry Barnard, assigned an important place to the home—with the school, libraries, and public lecturing—in his vision of the institutional life calculated to produce “a contented, moral, and intellectual people.” The actual life of the people, notably of the young, was characterized in Barnard’s opinion by the striking difference between country and town. Country life fostered a stagnation of the mind, but it also had its uses. It produced energy, ambition, and a freshness of imagination, nurtured by observation of living and growing

<sup>9</sup> Frederick A. Packard, *The Daily Public School in the United States*, (Philadelphia, J. B. Lippincott & Co., 1866), pp. 15-16.

things. Above all, it made possible "a more perfect domestic education, as parents have their children more entirely under their control, and the home is more completely, for the time being, the whole world to the family." In a manufacturing community, the mind was stimulated by association with other minds: "There is quickness of intelligence, an aptitude for excitement, and an absence of bigoted prejudice for what is old...." But these advantages had their defects. The facilities for mental improvement might become causes of moral degeneracy and corruption. The young were often denied, among other things, the charm, seclusion, and refinement of a pleasant home. Needless to say, Barnard prescribed improved schooling for the ills of both country and town life. He also called for improved family life, noting that the time children spent in school was but one third or one quarter of the time spent out of it.

The tone of conversation at table and at the fireside is of greater importance than many imagine: so are the books and newspapers read and thrown before the young. The father, at his work-bench or behind his counter, while hoeing his corn or pursuing any other of our social forms of useful labor, may be communicating to his sons and other companions, lessons on an endless variety of useful topics; while the mother may ordinarily find still more frequent and opportune occasions to pursue a similar course with her daughters.

There was no magic in a school to render it necessarily more favorable to improvement than any other place: "... while we have our children around us, we commonly have them in a purer atmosphere, more comfortable positions, and a state of greater freedom to listen to instruction, and to ask for explanations, than the vast majority of children customarily enjoy in their schools."<sup>10</sup>

The wife of Barnard's fellow school-reformer, Horace Mann, also felt a need to come to terms with the question of the family and organized education elsewhere. Mrs. Mann's statement was brief but illuminating:

... as I see the poor and neglected children in the streets, or in their wretched houses, and how they live and grovel in low practices, gradually losing the sweet innocence of infantile expression [an echo of Blake and Wordsworth?], and becoming coarse and violent, even brutal, I wonder still more at the torpidity of society on this subject.

<sup>10</sup> Henry Barnard on Education, ed. John S. Brubacher (New York, McGraw-Hill Book Company, Inc., 1931), p. 39 ff. Barnard's marshalling of institutions to produce a "contented, moral, and intellectual people" resembles the effort of George Ticknor to articulate the activities of common school and public library with the conscious purpose of elevating popular culture. Without intending to belittle the work of New Englanders as advocates of the public school and public library specifically, one wonders if the great educational contribution of New England in full flower was not a general mode of thought and action, based upon a conception of what a people might be if only the whole process of education were deliberately planned.

Nothing is such a proof of its selfishness as this neglect. Nothing makes me feel so keenly the need of a new organization of things. I do not like the thought of merging the sacred family relation in communities where all live together in public as it were, but it seems as if something might be done for the children of the needy that is not yet done.

That "but" is poignant. Mrs. Mann was faced with the necessity, as she saw it, of choosing between two objects of loyalty, the ideal of the home and the public action required by social conscience.<sup>11</sup>

Perhaps Mrs. Mann was witnessing the break-down of the family. Clearly the writers of the progressive era were deeply concerned over this eventuality or fact. In 1901, George E. Howard, the historian of matrimonial institutions, wrote: "The family, it is alleged, is in danger of disintegration through the tendency to individualism which in many ways is so striking a characteristic of the age."<sup>12</sup> Actually, for Howard, this judgment was no mere allegation. And for John Dewey it was one of the foundation stones of educational policy. The argument of *The School and Society* is familiar—in a double sense, being a variation on an old theme and scrying in Dewey's formulation as required reading for educators. The core of the argument was the transformation of production from the household and neighborhood system to the factory system. In the household, there was always something "which really needed to be done, a real necessity for fidelity and cooperation in work; ". . . there was continual training of observation, of ingenuity, constructive imagination, of logical thought, and of the sense of reality acquired through first hand contact with actualities." The concentration of industry and the division of labor had, however, practically eliminated the household and neighborhood occupations at least for educational purposes. Radical conditions had changed, and only an equally radical change in education would suffice. The school must supply that factor of training formerly taken care of in the home. Dewey remarked that the steps already taken in that direction had not been taken on purpose, but he obviously believed that the movement should be wholly conscious.<sup>13</sup> This line of thought was presently generalized in the proposition that, in Alexander Inglis' words,

Whenever any other social institution fails to provide forms of education socially desirable the school should assume responsibility for those forms of education as far as may be possible . . . Conversely,

<sup>11</sup> Mary T. P. Mann and Elizabeth P. Peabody, *Moral Culture of Infancy and Kindergarten* (George Routledge & Sons, London, 1894), p. 107. The passage was written about twenty years before the publication of *School and Society*.

<sup>12</sup> George E. Howard, *A History of Marriage and Institutions* (Chicago, The University of Chicago Press, 1903), III, 225.

<sup>13</sup> John Dewey, *The School and Society*, third ed. (Chicago, The University of Chicago Press, 1900), pp. 21-24.

whenever other social agencies provide adequately for forms of education socially desirable the school should not attempt to assume responsibility for them.

In application of this rule, Inglis dealt explicitly with the family, which was in his opinion the fundamental social unit. The solidarity of the home or family and the interdependence of its members had lessened, the factory system had removed most of the occupational stimuli of the home, etc. The detailed argument need not be repeated; suffice it to notice that the school had become the residuary legatee of the educational responsibilities of a declining family. Inglis left room for the inference that the school might presently replace the family altogether as an educational institution. "Inevitable changes," Inglis wrote, "occur from time to time in the home." Compensating changes might be made in the home itself, by some other institution (not including the school), or in the institution "which society has created for that special purpose, i.e., in the school." Its history as a social institution showed clearly, Inglis had said, that its inception and development could be traced to its assumption, directly or indirectly, of the activities and functions of the home.<sup>14</sup>

### III

It is certainly convenient to map a large portion of the history of education with family and school as coordinates. May we indeed go beyond this to say that *in loco parentis* sums up a great movement in history, the drift of the young from the family to the care of surrogate parents? Nearly a century ago, Sir Henry Maine wrote:

The movement of the progressive societies has been uniform in one respect. Through all its course it has been divulgated by the gradual dissolution of family dependency and the growth of individual obligation in its place. The Individual is steadily substituted for the Family, as the unit of which civil laws take account.

This movement was one, in Maine's most famous words, from Status to Contract.<sup>15</sup> Varying the phrase to fit the effect of the laws and practice of education, can one say that society has moved in its provision for the young from status to diploma? If the content and uses of education have changed significantly with a shift in its mode, the correct word for the event in question is "displacement" rather than "replacement." The former implies a transfer

<sup>14</sup> Alexander Inglis, *Principles of Secondary Education* (Boston: Houghton Mifflin Company, 1914), pp. 311 ff. See also Lawrence A. Cremin, "The Origins of Progressive Education," *The Educational Forum*, January, 1960, pp. 135-137, for a discussion of the whole issue.

<sup>15</sup> Henry S. Maine, *Ancient Law*, Worlds Classics ed. (Oxford), pp. 139-141.

mation of the character of society as well as a shifting about of its machinery.

The most casual investigation of the evidence indicates that the school has altered the experience of the young, but precisely how and to what extent and depth has it been changed? Exploration of the literature leaves the impression that, even as the school has grown in importance to the young and as an autonomous social institution, it has acquired some of the characteristics of the family. In its decline, if it has declined, the family has influenced its heir apparent, who may sometimes have been a little too ready to scold the family for its failings or even to order its coffin. The *pater familias* would appear to have been one model of the headmaster and of the old-fashioned college president, and the home at its best may be the inspiration of much residential schooling. It is possible to interpret progressive education partly as an effort to salvage the educational assets of the family and household by giving them a central place in the school.<sup>16</sup> Even if Dewey's intentions were not unmistakable, the decoration on the cover of *The School and Society* would point a moral. A child sits intent upon work at a spinning wheel, the very symbol of the traditional American home. The picture calls to mind Professor Marvin Meyers' remarks upon the part that a vision of the Old Republic played in Jacksonian politics. Is there perhaps a tincture of nostalgia for the Old Family in progressive education?

Nostalgia for pre-industrial and pre-urban life undoubtedly appeared in another educative institution of the progressive era. The general passages of the first Boy Scout manual are virtually a retrospective anthology of chivalric idealism. Scouting and the other youth movements must be borne in mind during any inquiry into the impact of family and school upon the young. The establishment of these movements and the appearance of specialized forms of the arts for the young, forms ranging from *St. Nicholas* magazine to Walt Disney's films, meant the creation of a youngster's culture, the fascinations of which may be a part or a competitor of the life of the family and of the school. Also, child-rearing in the family itself has become an object of deliberate reform and the subject of a copious literature. In some circles parenthood has virtually become a learned profession and, in many circles, a conscious art. All of these movements have presumably affected not only the relationship between family and school but also the whole of the educational economy. Its patterns can of course be described in terms of more options than one. Perhaps the most obtrusive today is that between public and private education in the modern sense of the adjectives. Still other watersheds of policy will impress beholders according to their points of view.

<sup>16</sup> In 1914, a professional student of education in Wales noticed the endeavor of "the Chicago School of Educators" to provide a substitute for the "household system." See Alice Paterson, *The Edgeworths*, (London, W. B. Clive, 1914), p. 14.

## IV

One is tempted to carry the metaphors of natural history over from description to interpretation, particularly to introduce an analogy between the role of elemental forces in geological creation and the part which great, impersonal—isms are supposed to have in the shaping of society. It is easy to see resemblances between the impact of a glacier pushing down toward the tropics and the effect of industrialism as it encroaches upon the life of the traditional household. Both movements have the look of inevitability. The thrust of such forces is so powerful that it is not surprising to find determinism in use as the key to history, natural or human. We have long been familiar, for instance, with the idea of the school as the necessary product of its social environment. The rudiments of the conception appear in some of the writings which have been sampled here. The decline of the family is presented to us by the progressives as an observed fact. Given the fact, the argument runs, the nature of the school must change.

Yet were the progressives merely reporters—lay practitioners of that “scientific” history which is expected to produce nothing but authenticated information? Clearly we cannot receive them in court as independent and disinterested witnesses. They read each other’s minds and the minds of older writers as well as the same page of objective human experience: Howard was acquainted with Maine’s formula, Inglis knew his *School and Society*, and Howard and Dewey may quite possibly have drawn ideas from a common pool at the University of Chicago. The presumption is that even the ostensibly reportorial sections of the progressive literature are in some part a transcription of speculative discourse about the meaning of history as distinct from a body of evidence on events in history. And obviously the progressives were men deeply committed to a crusade. Their imperatives were moral and consequently different from the *musts* of natural history.

But the progressives are not to be dismissed on the grounds that their testimony is suspect. On the contrary, they are most interesting precisely because they possessed fertile minds and strong wills. Their case raises a crucial question: is the purposeful imagination of the educator itself a force in human society, a force which has no counterpart in wild nature? If so, to study the education of history is to enquire into the causes of Man’s experience.

# The New Historian of American Education

*Some Notes for a Portrait*

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A NEW KIND of historian is coming to the old problem of telling how man has learned and taught. Although he may be new to the field of educational history, he is not a newcomer to the writing of history. Earlier he may have been devoted to general history or to social or intellectual history. From whatever interest, however, he is one who has the opportunity to rejuvenate an old subject with novel inquiries. In this essay I shall briefly suggest what I think may be the intellectual and academic outlook of the new historian of education in the United States.\* My aim is not to discuss his subject matter, though that is a closely related task.

Two traits, I submit, generally distinguish the new historian from his predecessors in the field of educational history. These traits are his use of broader historical references and his wider, more humanistic, professional commitment. They are having a liberating effect upon educational history viewed as an academic field and as a professional pursuit. By employing broader historical references than were used, for example, in the writings of Ellwood Cubberley or Paul Monroe, the new historian frees himself from a narrow appraisal of our past educational institutions. Institutional history is of course important to him and may, over the long run, turn out to be his most meaningful theme. But by widening his sources of inquiry, by relating the institution to its social setting and to other cultural institutions around it, by exposing the complexity of ideas and movements that educate different men in different times, by seeing the ways in which men and events at large control or are guided by educational themes and organizations, the new historian of education clarifies and enriches the institutional story he tells. Although it was written almost two decades ago, Robert S. Fletcher's *History*

\* Parts of this essay are taken from a lecture delivered at the University of California, Los Angeles, on January 6, 1960, under the auspices of the School of Education. An auxiliary research award from the Social Science Research Council also has helped me in preparing the essay.

of Oberlin College . . . through the Civil War stands as a model for this kind of institutional history in the field of higher education. It relates the social, religious, and political motives behind the founding and early years of Oberlin College so well to what was happening in the state of Ohio and within northern evangelical Protestantism that the book is, to my mind, one of the best studies in antebellum social history.

What the new historian of education is doing, moreover, has its analogy in what is happening in the historiography of American religion. Just as the older chronicles of "church" history are being superseded by the history of American religious ideas, notably in Harvard's renascence of Puritan studies, so is the older definition of educational history as the story of formal institutions being put aside in favor of tracing the sanctions and sources of education through society and ideology. It now is the external story of education that the new historian wants most to tell so that he may more skillfully and critically display the inner structure of institutions.

How wide may be the variety of his subject matter and his searches has been suggested by the Committee on the Role of Education in American History. It circularized the members of the historical profession in 1957 with a pamphlet that singled out eight great movements and problems in American history to which the educational historian, through intensive investigation, can turn to focus his writings beyond strictly institutional or vocational history.<sup>1</sup> Just how compelling for the historian is the case for writing educational history with new devotion to the past, studied in its own context, has recently been illustrated by Bernard Bailyn. He tells us how past-mindedness was lacking in the founding generation of modern American educational historians. In the first quarter of the twentieth century writers readily and erroneously assumed that the origins of American public school systems were to be found in our colonial past. As a new historian of education, Bailyn shows that "the modern conception of public education . . . was unknown before the end of the eighteenth century." The older generation of educational historians viewed the past as "simply the present writ small" in order to secure a respectable heritage in the history of education for their newly professionalized and bureaucratized group in America.<sup>2</sup> The new historian of education will also try to enhance the stature of his profession. But he will do so, for one reason, through an openmindedness for history. This encourages him to reach for untapped and varied source materials that can give him the broader references he needs to tell a more valuable institutional story.

<sup>1</sup> Paul H. Buck, Clarence H. Faust, Richard Hofstadter, Arthur M. Schlesinger, Richard J. Storr, *The Role of Education in American History* (New York: The Fund for the Advancement of Education, 655 Madison Avenue, New York 21, N. Y., 1957). Copies of this pamphlet are available from the offices of The Fund.

<sup>2</sup> Bernard Bailyn, *Education in the Forming of American Society: Needs and Opportunities for Study* (Chapel Hill, The University of North Carolina Press, 1960), pp. 9-11.

While he employs broader historical references, the new historian of education may increasingly display his second trait. It is a professional commitment that is freer in its intellectual concerns than the interests of his predecessors. They were governed by their commitment to schools and school policy. But the new historian is likely to think of our educational past in terms that reveal his close kinship to humanists and to social scientists. If he wants to trace educational change as an embodiment of the transit of cultures, for example, he may soon learn that factual historical knowledge of the period and theme he is studying is too vast to be made meaningful without the unifying viewpoint of the humanist or the recent methods of the social scientist. He will borrow perspective as well as technique throughout a world of learning that stands ready to aid him in his search for educational patterns. From his historian's vantage point he can well afford to use some of the hypotheses and methods of the ecologist, the demographer, the philologist and semantist, or the sociologist, whenever they appear to offer new insights or to substantiate old ones. And he will at times turn expectantly to histories of specific disciplines within the humanities and the sciences in order to find the thread of intellectual history for his story. Indeed, the new historian of education himself may be trained or employed in an academic field outside of history, yet come temporarily to the history of education with an outlook that dispels cant and fruitless preconceptions. There is admittedly a danger that some such newcomer will do just the opposite by bringing dogmas that narrow or stultify his historical searches. But this, I hold, is a chance that educational history in its present state of change can well afford to take.

There is, some may say, the even greater danger that historians of education will be misled into overusing modern devices that are used profitably in other academic fields and that appear to offer ways of finding short-cut answers to knotty historical problems. The punch-card method of amassing and sorting historical information has, for example, been tried cautiously and effectively by historians in various fields, particularly by those making career-line studies.<sup>3</sup> Doubtless the new historian of education welcomes and will sometimes employ this quantitative procedure; there already are books showing the degree of success that lengthy biographical tabulations can attain in showing educational patterns.<sup>4</sup> Such procedures for the new historian of

<sup>3</sup> See, for example, Merle Curti, with Robert Daniel, Shaw Livermore, Jr., Joseph Van Hise, and Margaret Curti, *The Making of an American Community: A Case Study of Democracy in a Frontier County* (Stanford, Stanford University Press, 1959). Career-line studies have most fruitfully been made in the area of business and social history by economists and sociologists such as William Miller, C. Wright Mills, Mabel Newcomer, or E. Digby Baltzell.

<sup>4</sup> Stephen Sargent Visher, *Scientists Starred, 1903-1943*, in "American Men of Science": *A Study of Collegiate and Doctoral Training, Birthplace, Distribution, Backgrounds, and Developmental Influences* (Baltimore, Johns Hopkins Press, 1947); Walter Hugins, *Jacksonian Democracy and the Working Class: A Study of the New York Workingmen's Movement, 1829-1837* (Stanford, Stanford University Press, 1960), chapters 5-6.

education may make his inquiries more precise and the answers sometimes clearer. Yet he must guard against assuming that they will uniformly provide him with satisfactory answers for his questions any more than fashionable theories in educational history have furnished satisfactory answers in the past. Such methods cannot assure an understanding of the many intricate workings of human motivation in some historical period or of social organization or of historical results. But they may help to do so; and certainly they should not be dismissed by the historian of education as a university don in England did when he greeted a former student, returning from America with his shoebox of IBM cards tucked under an arm, by saying "Oh good! Here comes Mr. . . . with his history machine."

Other interests, too, will draw the new historian of education into his wider professional commitment. Some will be based in his individual temperament and in his first scholarly motivations. To a considerable degree they may be the psychological origins of his academic existence; they will include motives that may have sent him early into graduate work in history rather than to the teachers college or to the education department of his predecessors. His sense of career will be oriented toward scholarship primarily and toward educational service secondly. By undergoing this change in academic outlook the historian of education should be able to strengthen his intellectual position. His prime allegiance will not be to the enhancement of the social status of the teaching profession. That may be a welcome result if first he does his part in building a substantial intellectual enterprise through his inquiries and writings. Rejecting the parochial outlook of his predecessors when he finds that it has led to exaggerated claims for the history of educational institutions, he still can honor their work of finding and amassing historical evidence and producing helpful monographs. He realizes, too, that they perhaps were governed by the same urge that has beset many a profession in its infancy, the urge to establish its own standards and group interests. And if he has been trained in "general" American history, which usually means political history, he may perhaps recall that historians until only recently were peculiarly wedded to one-dimensional political accounts of our past, based chiefly upon the institution of the presidency, in much the same way that educational historians have focused narrowly upon the history of the curriculum or of school administration. In brief, he will try to learn alike from the limitations and from the achievements of older historical writing in the field of education; and, if he writes well and believes that history can be a literary art, he may hope to interest a large audience in his story, the result of exciting searches and wide professional interests. In turn, such an audience will listen to him, I think, because the educated public already realizes that its rapidly changing world needs fresh and imaginative interpretations of the role of education in American and in world history. No matter what brings him initially to his

field, the new historian of education in company with other historians and with laymen will increasingly try to meet C. Vann Woodward's challenge: "We come of an age that demands a great deal of historians."<sup>5</sup>

With the two traits I have been describing, the new historian of education may come close to meeting the demands of his age. There are signs that he is now facing up to the task.<sup>6</sup> But if he judiciously employs the methods and attitudes of these traits and nothing more, he still may not have the total equipment he possibly needs. I think that there is another aspect to his intellectual make-up which is required if he is to be an improvement in the line of educational historians. This aspect has more to do with the attitude he has about his own place in society than with the way he writes history, but when the attitude is strongly formed and asserted I think it can help him in his writing because it may give him a more comprehensive and genuinely useful conception of educational history than that of his precursors in the field. It has to do with his sense of professional purpose. If he acquires this new outlook toward his own place in society, I think he may find that his professional purpose is identifiable with his intellectual purpose. Together they cannot allow the inbred and self-perpetuating guild aims of former years to continue. The new historian of education may thus be encouraged, as perhaps other members of the academic community already are being encouraged, to work beyond the vocational training goals and the limited professional outlook of another generation of teachers and writers in education.

If such an outlook develops in the new historian of education, it may be an intensely personal matter for him. He may find it difficult to admit publicly to any other professional purpose than that of satisfying his own curiosity and communicating his findings about the past. He may, for instance, acknowledge concern only for ideology behind event and cultural change or for social forces and intellectual motives affecting particular men or institutions in our educational past. He then may want only to write about these problems as

<sup>4</sup> "The Age of Reinterpretation," *American Historical Review*, LXVI (October, 1960), 1-19.

<sup>5</sup> Besides Richard Hofstadter and Walter P. Metzger, *The Development of Academic Freedom in the United States* (New York, Columbia University Press, 1955), the recent study by Bernard Bailyn, mentioned previously, and Merle Curti and Vernon Carstensen, *The University of Wisconsin, A History, 1848-1925* (Madison, University of Wisconsin Press, 1949), there are few books in the history of American education that meet the requirements of a New History of education. For encouragement one must look for works in progress: Merle Borrowman's account of the rise of the state universities, Lawrence Cremin's study of the progressive education movement, Richard Hofstadter's examination of anti-intellectualism in America, Walter Metzger's story of the American Association of University Professors, Edmund S. Morgan's biography of Ezra Stiles of Yale, Richard Storr's history of the University of Chicago, some of the recent contributions to educational journals such as this one—especially those articles that depart from the traditional institutional approach to the history of education, and dissertations in progress in some graduate departments where students are being stimulated to investigate the role of education in American history.

clearly as he can. Surely, this is a great service: it would improve the literature of his field, extricating it from the morass of textbook history.

He follows, however, in the tradition of men who had a compelling sense of the usefulness of their writing to their profession and to the public. He will want to break with them in the kind of history he writes, but not in having a sense of social usefulness. If he wants to serve educational enterprises in the best way he knows, in a thoroughly intellectual fashion, I do not think that he for long can consider his purpose in society to be his own private intellectual or artistic concern. Eventually he will want to admit publicly that he does have a usefulness in society. But it need not be, nor should it be, the same as that of the older historians of education. When he thinks of himself as useful to society, by useful he will not mean "functional" in the way it has been over-worked as a descriptive judgment of history of American education courses and their textbooks.<sup>7</sup> Whereas the old historians of education were "functional" in the training of teachers and in strengthening and defending their corner of the academic profession, the new historian may perhaps be useful in these ways too, but more significantly in a different way.

For the new historian of education will perhaps see his own role first as that of being a representative of humane learning in our industrialized and specialized society. As such he will be wedded to the life of the intellect and respectful of it in the past. It will unfailingly excite him. It can put him in company with other historians, indeed with all academic men who have this excitement about their life, in contrast to the way that his vocationally-directed predecessors in the history of education did not share fully in such company. He may be told, perhaps too frequently, that ours is an anti-intellectual society. If so he can, through this very attachment to the life of the mind that transcends guild interest, the more readily protect himself against the blandishments of those who would make him first a public "servant" or a publicist for his profession or a man with restricted intellectual purpose. And if in misguided defense of his intellectual integrity he loses this attachment and yields to academic or guild pressures, he will tend to lose from his writings those grand themes in the history of education which are the advancement of learning and the transmission of a culture from one generation to another.

To those who may tell him that the historian of education has a debt to his profession to recruit and train new members and an obligation to the public to inform it of the importance of education in the past, I think his answer clearly can be that he is indeed fulfilling his "function" in these respects and

<sup>7</sup>The argument over educational history as a "functional" or "non-functional" academic subject can be followed through the pages of the *History of Education Journal* in the last decade. The clearest tracing of the fortunes of history of education courses in this century is also found in this journal in Lawrence A. Cremin's "The Recent Development of the History of Education as a Field of Study in the United States," VII (1955-56), 1-35.

paying his debts. He does so without worrying about the "practical" uses of his written history. How so? In his role of intellectual he is a servant of his community in the most important way that an academic man can be of service. He serves intellect and disciplined thinking while he inspects the past and probes the outer reaches of historical knowledge. As a research scholar and speculator with historical ideas, he displays and analyzes the attitudes of the past for the pragmatic judgment of the present as well as for the sake of his own art. He does this with his peculiar regard for ideas, consisting in a piety and a playfulness toward them, that Richard Hofstadter once portrayed as the essence of the intellectual's existence.<sup>8</sup> With this attitude he can exchange the guild piety of his predecessors for the humanistic pieties of the modern man of arts and letters; with it he can indulge in the playful retrospection that ultimately makes his writing most beneficial to others. Ideas out of the past exist vividly for him as a historian; but he remembers that men held these ideas and that a pious and playful regard for ideas today can perhaps only be held by men like himself. To tell society about his attitude toward ideas may be his usefulness through the field of education.

If his playful arrangement of past ideas leads the new historian to agree with the education-is-life school of thinking that the history of education is "history," that just about anything that happened is somehow connected with education, perhaps he can advantageously do so in the way that Henry Adams thought of his own life story as his education. To the new historian, the history of education likewise may be the history of a people as it has learned and as it has transmitted its culture. But here his piety for the life of ideas holds him in check; he does not want to exaggerate. History of education for him must be a tough-minded history that critically relates historical evidence connected with learning and teaching to his own historical imagination; his cannot be a tender-minded history written to fit a particular group interest or to declare as fact what he wishes had happened to educational institutions. For him simply to let it go that history is "life" is for him to invite his own undoing. It is dangerous because it is an excuse for slipshod thinking about the past that sees the life of yesterday largely in the terms of today, that sees the past as "the present writ small." Moreover, this view, despite its good intentions for the history of education, is really one that may lead the historian to evade a disciplined and systematic study of educational themes. Education before our time was not necessarily "life" as we know it; but it was at least a process of cultural and institutional change. To telling the story of change in its educational manifestations the new historian, then, can perhaps best apply himself. If he chooses to do so, combining a past-mindedness for his subject matter with a creative and pragmatic playfulness in his treatment of

<sup>8</sup> "Democracy and Anti-Intellectualism in America," *The Michigan Alumnus Quarterly Review*, LIX (August 8, 1953), 281-295.

it, he may be useful to society in the best way it can expect of him. Doing so may help him to have an intellectually realistic view of himself. At the same time, if he is genuinely useful in the way of an intellectual, it may help to give him an idealistic viewpoint. He may join with his colleagues from all walks of school and academic life in the common endeavor of education that Alfred North Whitehead once called "the habitual vision of greatness."

# Who Paid The Bills?

*An Inquiry into the Nature of Nineteenth-Century College Finance*

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OF ALL SUBJECTS germane to a history of American education, collegiate finance is in many ways the most troublesome and the least rewarding. Collegiate historians have often chosen to avoid the subject altogether simply by abandoning themselves to fulsome praise for "that old college spirit"—that undefinable something that inspired a band of human angels to fan the flame on college hill.

This spirit surely deserves consideration. Without it a large number of incredibly anemic institutions would not have survived. Old grads and keepers of the traditions quite properly have an investment in whatever there was about it that defied logic and sustained colleges in the absence of both need and students. Yet, the question of who supported the American college in the days of its infancy and immaturity cannot so easily be answered. Who indeed passed the college along into the present? Who nurtured it during the long years when survival was often a more important matter than purpose, when the light on the college hill in fact did flicker and in hundreds of instances did go out? In other words, who paid the bills?

The students did not. From the beginning the American college has been cloaked with a public purpose, with a responsibility to the past, the present, and the future. Charged with this large responsibility, the college was expected to give more than it received—not more than it received from the society which it served, but more than it necessarily received from the particular young men who were being prepared to do society's work. The college was not to be an institution of privilege. Society required the use of all its best talents, and while it would be easier for a rich boy than for a poor boy to go to college, persistence and ambition and talent were not to be denied. As a consequence, the American college became an expression of Christian charity, both in the assistance which it gave to needy young men and in the assistance which it received from affluent old men.

Philanthropy was from the very beginning a major financial support of the American college. In New England, it was encouraged by the sense of Christian stewardship which Puritanism nurtured. From this concept of stewardship would flow many of the benefactions which supported the American college, until in combination with the great fortunes which opportunity in America supported, there would emerge in the second half of the nineteenth century full-blown institutions, each the creation of a single originating donor: Vassar, Smith, Johns Hopkins, Stanford, Chicago, Wellesley.

A model antebellum benefactor was Amos Lawrence, a Boston merchant, who carried around in his wallet a piece of paper on which he had scribbled, "What shall it profit a man, if he gain the whole world, and lose his own Soul?" Into his account book Lawrence wrote in January, 1828: "My property imposes upon me many duties, which can only be known to my Maker. May a sense of these duties be constantly impressed upon my mind." A sense of these duties made Amos Lawrence the leading individual benefactor of Williams College before 1875, made his brother Abbott Lawrence the donor of a scientific school to Harvard, and his son Amos Adams a founder of Lawrence College at Appleton, Wisconsin. At Amherst, Samuel Williston, a Connecticut Valley button manufacturer, was the good steward; at Wesleyan in Connecticut, Isaac Rich, a Boston fish merchant; at Lafayette in Pennsylvania, Ario Pardee, an anthracite mine operator.<sup>1</sup>

Stewardship, of course, might be combined with a yearning for self-monumentation, and certainly on more than one occasion the image of pure Christian charity was blurred by flattery and conceit. President Manning of Rhode Island College, for instance, was led to remark in 1783 for the benefit of the descendants of a wealthy man: "Cambridge College was so fortunate to attract the attention of an Hollis; New Haven of a Yale & New Hampshire of a Dartmouth. . . . We should think ourselves no less happy in the Patronage of a Llewelin. *Llewelin College* appears well when written & sounds no less agreeably when spoken."<sup>2</sup> Twelve years later another president of Rhode Island College was writing to a friend in the South: "The corporation at their last meeting past [sic] a resolution that if any person would previous to the next Commencement, give to the College \$6,000, he should have the right to name it. Have you no eminent rich man among you, who might be disposed?" Within a decade the price was down to \$5,000, and a year later Nicholas

<sup>1</sup> The roots and manifestations of American philanthropy are considered in Robert H. Bremner, *American Philanthropy* (Chicago: University of Chicago Press, 1960). A survey of nineteenth-century college and university philanthropy is provided in Jesse B. Sears, *Philanthropy in the History of American Higher Education* (Washington: Government Printing Office, 1922). For a case study see "Amos Lawrence and the Stewardship of Wealth" in Frederick Rudolph, *Mark Hopkins and the Log* (New Haven: Yale University Press, 1956), pp. 175-87.

<sup>2</sup> Walter C. Bronson, *The History of Brown University 1764-1914* (Providence: Brown University, 1914), p. 78.

Brown took up the offer—one which cost him \$160,000 before his benefactions ended.<sup>3</sup> Similar arrangements were worked out at the institutions which became Bowdoin, Denison, and Carleton.<sup>4</sup> A college, however, could only sell or give its name once.

And it could not, either through flattery or simply fervent Christian appeal, create affluent benefactors where they would not grow. It would take time before benefactors would be standing in line to build monuments to themselves: that moment would wait until later in the nineteenth century, at a particularly low point in the history of American architecture. Only six professorships were endowed in American colleges before the American Revolution, four of them at Harvard.<sup>5</sup> Few institutions could rely on significant endowments until after the Civil War. Endowments of sizable proportion were a contribution to the American college of the industrial revolution, of the remarkable rewards which it brought on the eminently exploitable American continent, and of the sense of stewardship which invigorated the possession of private wealth with a sense of public responsibility. In the absence of significant endowment and of great numbers of men of wealth, the colleges at first found it necessary to depend upon other sources of financial support.

One obvious device was to turn to the people at large, a solution which broadcast the public nature and popular intentions of the college. In colonial America, where there was more corn than cash, the subscription method of pledging aid to a college might bring in more produce than pounds. Agents of the College of New Jersey in 1769 rounded up approximately £1,000 in contributions in Georgia, most of it in produce, and the college promptly chartered a vessel and sent for it.<sup>6</sup> The subscription method was generally resorted to when a college was being founded or when it was in more peril than usual; it permitted an appeal to local pride or to some special interest—perhaps sectarian—and it had the rather important effect of suggesting that the support of higher education was a popular responsibility regardless of one's wealth. The names that appeared on the subscription lists of colleges in New England, Ohio, Illinois, and Kentucky, were seldom the names of the wealthy; most of them belonged to God-fearing farmers for whom a college was of perhaps no immediate value, but for whom the *idea* of a college was of transcending importance. Often these subscribers were never able to pay their pledges: a cold spring, a frost in July, a visitation of grasshoppers could make the difference. Subscriptions, sometimes of labor, often erected the first

<sup>3</sup> *Ibid.*, pp. 144, 155-7.

<sup>4</sup> Louis C. Hatch, *The History of Bowdoin College* (Portland: Loring, Short, and Harmon, 1927), p. 4; G. Wallace Chessman, *Denison: The Story of an Ohio College* (Granville: Denison University, 1957), p. 55; Delavan L. Leonard, *The History of Carleton College* (Chicago: Fleming H. Revell, 1904), p. 178.

<sup>5</sup> Sears, *op. cit.*, p. 80.

<sup>6</sup> Thomas Jefferson Wertenbaker, *Princeton 1746-1896* (Princeton: Princeton University Press, 1946), p. 53.

college building, perhaps an adaptation of Nassau Hall at Princeton or of the Bulfinch building at the Andover Theological Seminary. Or they justified a board of trustees in going ahead with the task of assembling a faculty and a student body. But public subscriptions seldom meant much more than that a college was now—or still—in business and apparently with some element of local support. Subscriptions did not mean that the college would necessarily be in business next year.<sup>7</sup>

The imagination and resourcefulness and necessity which made many an American a jack-of-all-trades and a master of none also characterized collegiate financing. One college might turn to an annuity arrangement such as Azariah Williams entered into with the University of Vermont in 1839, when he deeded the university land to the value of \$25,000 in return for an annual income until death.<sup>8</sup> In New England, in the 1820's, there were numerous "Kenyon Circles of Industry," local sewing circles that did what they could for Kenyon College in Ohio.<sup>9</sup> Assistance to many colleges came from the nearest thing the first half of the nineteenth century had to the Ford Foundation—the American Education Society, founded in 1815. The Society raised funds in the Congregational churches and helped to send promising ministerial candidates to the appropriate colleges. In 1830, approximately a fourth of the ministerial candidates then in college were beneficiaries of the American Education Society or of similar organizations founded by Baptist, Presbyterian, and Dutch Reformed groups. Between 1845 and 1854, beneficiaries at Amherst ranged between seventeen and thirty-one per cent of the student body.<sup>10</sup>

The employment of paid agents was often resorted to and, while they were in no sense professional fund raisers such as the twentieth century has developed, they were usually the best substitute that the era offered, dedicated clergymen who were willing to take a percentage of the proceeds for their canvassing efforts. Roman Catholic institutions, so impoverished that by 1866 only St. Mary's College in Texas possessed any endowment, did have one source of support not available to other American colleges—missionary societies in such European cities as Vienna, Munich, and Lyons, societies prepared to cater to the educational needs of the faithful in Protestant America.<sup>11</sup>

Few colleges were as fortunate as Union College to which its president, Eliphalet Nott, turned over a fortune of \$600,000 in 1854, the consequence

<sup>7</sup> Sears, *op. cit.*, pp. 16-17.

<sup>8</sup> Julian Ira Lindsay, *Tradition Looks Forward: The University of Vermont, a History 1791-1904* (Burlington: University of Vermont, 1954), p. 169.

<sup>9</sup> George Franklin Smythe, *Kenyon College: Its First Century* (New Haven: Yale University Press for Kenyon College, 1924), p. 65.

<sup>10</sup> Sears, *op. cit.*, pp. 47-9, 74.

<sup>11</sup> Sebastian A. Erbacher, *Catholic Higher Education for Men in the United States 1850-1866* (Washington: Catholic University of America, 1931), p. 74.

of Nott's invention of a particularly successful stove and of wise investments. Other college presidents seldom were able to translate their imagination and desperation into collegiate endowment; Union was the most richly endowed college in the United States before the Civil War.<sup>12</sup> Both Lafayette College and Marietta College, under the influence of a get-rich-quick craze, in the 1830's made an unsuccessful effort to coax endowments out of mulberries and silkworms.<sup>13</sup> In this tradition late in the century at Pomona College, President Cyrus Grandison Baldwin, hoping to solve the financial problems of his college for all time, undertook unsuccessfully to harness a mountain torrent to provide power and light and profits forever.<sup>14</sup>

Hare-brained as that project may have been, nothing compares with the widespread and desperate device of selling what were called perpetual scholarships. In an effort to collect funds to erect buildings or to augment endowments, many colleges authorized their agents to sell at a set price—generally in the neighborhood of \$500—perpetual scholarships, entitling the owner to free tuition for one person in perpetuity. There were many variations of this scheme: for smaller sums scholarships could be purchased for a time span somewhat shorter than eternity. The price range in this bizarre field of collegiate financing suggests that some colleges were more willing than others to mortgage their futures in order to meet the competition of other institutions, colleges for which there was no demand and, if the truth were admitted, no need. The excessive number of colleges and the absence of any widespread public desire for higher education drove many institutions to sell their future income "at a tremendous discount." An early, perhaps the first, resort to this device was at the University of North Carolina in 1789, but its heyday was in the years between 1835 and 1860, during the height of the college-founding era. In these years the scholarship scheme commended itself to the governing boards of Cumberland, Lafayette, Wesleyan, Dickinson, Wofford, Kenyon, DePauw, Ohio University, Oglethorpe, Columbia, University of Vermont, Emory, Denison, Genesee, Hanover, the University of Indiana, and unquestionably dozens of other small, struggling colleges.<sup>15</sup>

<sup>12</sup> Andrew Van Vranken Raymond, ed., *Union University: Its History, Influence, Characteristics and Equipment* (New York: Lewis, 1907), I, pp. 221-44.

<sup>13</sup> Arthur G. Beach, *A Pioneer College: The Story of Marietta* (Marietta?: Privately Printed, 1935), p. 64; David Bishop Skillman, *The Biography of a College: Being the History of the First Century of the Life of Lafayette College* (Easton: Lafayette College, 1932), I, pp. 128-9.

<sup>14</sup> Charles Burt Sumner, *The Story of Pomona College* (Boston: Pilgrim Press, 1914), pp. 138-9.

<sup>15</sup> Kemp Plummer Battle, *History of the University of North Carolina* (Raleigh: The Author, 1907), I, p. 7; Winstead Paine Bone, *A History of Cumberland University 1842-1935* (Lebanon: The Author, 1935) p. 88; Skillman, *op. cit.*, p. 215; Sylvanus M. Duvall, *The Methodist Episcopal Church and Education up to 1869* (New York: Teachers College, Columbia University, 1928), p. 88; James Henry Morgan, *Dickinson College: The History of One Hundred and Fifty Years 1783-1933* (Carlisle: Dickinson College, 1933), pp. 300-310; David Duncan Wallace, *History of Wofford College* (Nashville: Vanderbilt University Press for Wofford College, 1951), p. 50; Smythe, *op. cit.*, p. 152; William Warren Sweet, *Indiana*

The perpetual scholarship scheme was a particularly attractive idea to the colleges because it promised to solve their basic problems: it would give the colleges the funds that they badly needed in order to stay open and it would provide them with an immediate supply of students who would justify the colleges being open at all. Of course like so many other get-rich-quick schemes which Americans conceived in the nineteenth century, the perpetual scholarship did not work. McKendree College seems to have done about as well as any: it lost only \$1.02 for each \$1.00 it raised by selling scholarships.<sup>16</sup> Dickinson College adopted the plan in 1851 and by 1855 the college was running at a deficit of \$3,000: the funds raised by selling scholarships were gone and the college was full of students who did not have to pay tuition.<sup>17</sup> The experience of Lafayette College with the scholarship scheme suggests why it did not work. The theory behind Lafayette's campaign of 1850-1854 was that the funds raised would be used to endow faculty salaries. Students would be expected to pay for heat, room, and similar services, but there would be no need to charge for tuition. The beauty of this hope is perfectly clear: it promised a way of paying the faculty and of providing students. In one great campaign Lafayette could provide itself with faculty salaries and tuition-free students forever. The Lafayette campaign netted \$101,000 in pledges, of which \$67,000 never went into the proposed endowment of faculty salaries. Thirty-one thousand dollars were never collected; fourteen thousand went toward the payment of old debts; three thousand dollars went to the agents; two thousand dollars were absorbed by vital repairs on college buildings, six thousand went into new buildings; five thousand dollars were consumed immediately for current salaries and six thousand for other current expenses. Slightly less than a third of the sum pledged remained for endowment investment.<sup>18</sup>

The experience of other institutions was similarly dismal. Not only were the collected funds frittered away, but great numbers of tuition-free students now knocked at college doors and became one more drain on limited resources. The situation at DePauw became so unwieldy that in 1878, in order to invalidate the perpetual scholarships sold in earlier days, the college simply

*Asbury-DePauw University, 1837-1937: A Hundred Years of Higher Education in the Middle West* (New York: Abingdon Press, 1937), p. 111; Thomas N. Hoover, *The History of Ohio University* (Athens: Ohio University Press, 1954), pp. 97-8; Allen P. Tankersley, *College Life at Old Oglethorpe* (Athens: University of Georgia Press, 1951), p. 28; John Howard Van Amringe et al., *A History of Columbia University 1754-1904* (New York: Columbia University Press, 1904); Lindsay, *op. cit.*, p. 174; Henry Morton Bullock, *A History of Emory University* (Nashville: Parthenon Press, 1936), p. 69; Chessman, *op. cit.*, p. 92; William Freeman Galpin, *Syracuse University: The Pioneer Days* (Syracuse: Syracuse University Press, 1952), p. 9; William Alfred Millis, *The History of Hanover College from 1827 to 1927* (Hanover: Hanover College, 1927), pp. 60-1; James Albert Woodburn, *History of Indiana University* (Bloomington: Indiana University, 1940), I, 244-5.

<sup>16</sup> Duvall, *op. cit.*, p. 114.

<sup>17</sup> Morgan, *op. cit.*, pp. 300-10.

<sup>18</sup> Skillman, *op. cit.*, pp. 211-14.

adopted a universal policy of free tuition and substituted a schedule of miscellaneous fees.<sup>19</sup> At Denison in 1907 there were still 88 tuition scholarships outstanding; in 1910 the college started buying them back.<sup>20</sup>

The sale of scholarships was unequal to the needs of the colleges, but no more unavailing than benefactions, tuition, and fund drives. None of these supports, however useful, can be said to have been the indispensable, essential, life-saving support of the American college during the founding decades before the Civil War. The independent, private college, which was the characteristic institution of the period, was preserved by two agencies. One of these was the state.

Of course, the colleges were preserved in part by their own exertions, but no college survived the vicissitudes of life in nineteenth-century America merely on effort alone. Both tradition and the lack of sufficient historical investigation still stand in the way of a complete understanding of the often crucial role which government played in the financial life of the American college. But where study has been done, it becomes clear how much it meant to many colleges to have large injections of state funds added to their resources.

One great barrier to determining who paid the bills is the myth of the privately endowed independent college. Even colleges which derived no benefits from direct subsidy enjoyed public support in the form of tax exemptions and other preferential treatment. Speaking against the creation of a tax-supported national university in 1873, President Eliot of Harvard advanced the argument that "our ancestors well understood the principle that to make a people free and self-reliant, it is necessary to let them take care of themselves, even if they do not take quite as good care of themselves as some superior power might."<sup>21</sup> Had this principle actually been well understood by Mr. Eliot's ancestors there would have been no Harvard University and no presidential office for him to use against the principle of government-supported higher education. On over one hundred occasions before 1789 the General Court of Massachusetts appropriated funds for Harvard College, which clearly was not capable of taking care of itself. Indeed, one scholar who has studied the financial history and records of Harvard, Yale, and Columbia, has concluded that they could not have survived the colonial period without support of the state.<sup>22</sup> No study has been made that reveals the degree to which Harvard depended between 1814 and 1823 on the \$100,000 which the Commonwealth gave in annual installments of \$10,000, but clearly the \$30,000 received by Bowdoin and Williams as a result of the same legis-

<sup>19</sup> Sweet, *op. cit.*, pp. 127-8.

<sup>20</sup> Chessman, *op. cit.*, p. 213.

<sup>21</sup> Eliot's remarks at the Elmira, N. Y., meeting of the National Education Association on August 6, 1873, were reported in the *Boston Daily Advertiser* for August 9, 1873.

<sup>22</sup> Sears, *op. cit.*, pp. 25-6.

lative act underwrote whatever solvency both institutions enjoyed during the period.<sup>23</sup>

Not every college was saved by state aid, but it would certainly be helpful to find out how important to the survival of Columbia was the \$140,000 which it received and how important to the University of Pennsylvania was the \$287,000 poured into its resources by the Commonwealth of Pennsylvania.<sup>24</sup> One student of the Church-related colleges of the Old South has decided that loans from the state governments made it possible for the new denominational colleges of the 1830's to survive in the 1840's and 1850's.<sup>25</sup> Probably the same can safely be said of the effect of state grants on the fortune of such institutions in New York as the University of the City of New York, Hamilton, and Geneva.<sup>26</sup> Certainly the \$358,000 in state grants and proceeds from state-authorized lotteries which Union College received largely underwrote the college while Nott experimented with his inventions and investments.<sup>27</sup> There can be no question about whether the \$60,000 that went to Dickinson College between 1783 and 1832 sustained that institution: the appropriations of the Pennsylvania legislature to Dickinson were often of an emergency nature and it was well understood at the time that the grants were essential to the preservation of the college.<sup>28</sup>

In the case of Williams College evidence clearly points to the conclusion that state aid was an essential support during its first ninety years. It is altogether unlikely that the college could have survived its first fifty years without the \$53,000 which the General Court injected into the struggling institution between 1793 and 1823. That sum was exactly equal to that which the college itself had been able to raise in subscriptions, state-authorized lotteries, and bequests during the same period. As for the significance of later state aid—a total of \$100,000 between 1859 and 1870—there is the judgment of Mark Hopkins who referred to the \$75,000 appropriation of 1868-1870 with profound gratefulness: "But for an unexpected gift by the state . . . I do not see how the College could have got on."<sup>29</sup>

It has been a relatively easy matter for people in recent years to overlook the historic role of government in sustaining the colleges. The states after the Civil War discovered more popular instruments for their generosity—state universities and the land-grant colleges. In discovering or strengthening their

<sup>23</sup> Samuel Eliot Morison, *Three Centuries of Harvard 1636-1936* (Cambridge: Harvard University Press, 1936), pp. 213-14; Rudolph, *op. cit.*, p. 193.

<sup>24</sup> For statistics on government support of many individual institutions see Frank W. Blackmar, *The History of Federal and State Aid to Higher Education in the United States* (Washington: Government Printing Office, 1890).

<sup>25</sup> Luther L. Gobbel, *Church-State Relationships in Education in North Carolina Since 1776* (Durham: Duke University Press, 1938), pp. 32-4.

<sup>26</sup> Blackmar, *op. cit.*, *passim*.

<sup>27</sup> *Ibid.*, pp. 140-1.

<sup>28</sup> Morgan, *op. cit.*, pp. 125-30.

<sup>29</sup> Rudolph, *op. cit.*, n., p. 38.

obligations to such institutions, state legislatures were supporting higher education of a far more popular nature than the old-time college with its religious orientation and adherence to the classical course of study. Most states abandoned public assistance to the so-called private colleges, although New Hampshire between 1893 and 1921 added \$200,000 to the resources of Dartmouth (which had once won a famous law suit confirming its independence of the state), and as late as 1926 state legislatures were still supporting "private" colleges in Vermont, New York, New Jersey, Pennsylvania, and Maryland.<sup>30</sup> But once the colleges in the years after the Civil War found new means of support among their alumni and among a new crop of especially affluent millionaires, it became an easy matter for their spokesmen to forget how the colleges had once been sustained by the state.

Before long, college presidents would be talking like President Eliot, as spokesmen for rugged individualism, for the virtues of independence and freedom from state aid. Generosity which had once been essential to the colleges and inherent in the responsibilities of government now became insidious or it was forgotten altogether. In time the friends of the American college would be asked to increase their benefactions in order to avoid that awful day when the privately endowed independent college would have to turn to government for support. In time the myth of the private college would bury its honest, respectable past as a creature sustained in its most trying days by the responsible assistance of the state.

Of course hundreds of colleges had, in the way of state support, nothing more substantial than their tax exemption, an indirect subsidy that has not been thoroughly studied or appreciated. As one historian observed late in the nineteenth century, "An exception in favor of property invested in educational institutions must necessarily increase the taxes on other property, which is equivalent to voting a tax for the support of education."<sup>31</sup> Direct state support was not universal—it was not even as universal as private benefactions—but in numerous instances it clearly was one of the two agencies which essentially made the difference whether a college survived or not. Directly or indirectly, the state paid a significant number of college bills in pre-Civil War America.

The other agency, which was not only fully available to every college but also fully exploited, was the faculty. The American college professor was not paid in the nineteenth century. Everyone knew that he was not paid, that it was impossible to pay him in view of the collegiate commitments which received priority. The single most important and reliable financial support

<sup>30</sup> Leon B. Richardson, *History of Dartmouth College* (Hanover: Dartmouth College Publications, 1932), II, pp. 686-8; Lester William Bartlett, *State Control of Private Incorporated Institutions of Higher Education* (New York: Teachers College, Columbia University, 1926), p. 3.

<sup>31</sup> Blackmar, *op. cit.*, p. 25.

of the American college was its underpaid, sometimes even unpaid, faculty. The chief benefactor of the American college was, and perhaps still is, the American college professor.

Even if college salary schedules had been adequate, which clearly they were not, the evidence points to the inescapable conclusion that in one way or another even the inadequate schedules often were not adhered to. Essentially what was happening on the American college campus was the creation of a profession which was not expected—and, finally, not permitted—to enjoy or to aspire to the material pleasures and living standards which everywhere else defined American goals. There were all kinds of ways to finance an American college, but clearly this was the best. An occasional institution demonstrated what a living salary might be: \$1,500 at South Carolina College in the 1800's and at the University of Virginia in the 1820's, \$2,000 at Harvard in the 1830's and \$4,000 in the 1860's. But the overwhelming majority of American college professors knew such salaries as these: \$600 at Dartmouth in 1805, \$600 at the University of Georgia in 1815, \$700 at Bowdoin in 1825, \$700 at Williams in 1835, \$600 at Wabash in 1845, \$775 at Emory in 1855, \$600 at Denison in 1865.<sup>82</sup>

And as if it were not enough to underpay the professors in the first place, there developed a half-dozen or so methods of not paying them at all or of paying them far less than the terms of their appointments called for. One method was to keep salary payments in arrears—in other words, to not pay the professors fully, but to keep on promising to. This policy was resorted to at Oglethorpe in the 1830's, Illinois College and DePauw in the 1840's, and Wofford in the 1850's.<sup>83</sup> Obviously this was not a preferred policy. At Illinois College in 1845 the president and his family, in the absence of salary payments, were eating breadcrumbs and water, sweetened with molasses.<sup>84</sup> No policy that led to such apparent discomfort could become a regular aspect of the financial operation of the American college: far preferable was a salary policy that kept the professor and his family merely on the edge of comfort, the border of pleasure, the outskirts of security.

A favorite way of keeping a college from bankruptcy was to allow a professor to resign or die and then to apportion his teaching among those who re-

<sup>82</sup> Daniel Walker Hollis, *University of South Carolina* (Columbia: University of South Carolina Press, 1951), I, p. 30; Philip Alexander Bruce, *History of the University of Virginia, 1819-1919* (New York: MacMillan, 1920), II, pp. 182-3; Morison, *op. cit.*, p. 460; Richardson, *op. cit.*, p. 236; E. Merton Coulter, *College Life in the Old South* (Athens: University of Georgia Press, 1951), p. 21; Hatch, *op. cit.*, pp. 212-16; Rudolph, *op. cit.*, p. 11; James I. Osborne and Theodore G. Grouert, *Wabash College: The First Hundred Years, 1832-1932* (Crawfordsville: R. E. Banta, 1932), p. 69; Bullock, *op. cit.*, pp. 84, 91; Chessman, *op. cit.*, pp. 96, 99.

<sup>83</sup> Tankersley, *op. cit.*, p. 22; Charles Henry Rammelkamp, *Illinois College: A Centennial History 1829-1929* (New Haven: Yale University Press for Illinois College, 1928), p. 141; Sweet, *op. cit.*, p. 56; Wallace, *op. cit.*, p. 63.

<sup>84</sup> Rammelkamp, *op. cit.*, p. 141.

mained. Such a situation developed at Lafayette in 1860 and helped temporarily to erase the annual deficit of \$1,000.<sup>35</sup> Profit-sharing was another method, although no one had the indecency to call it that or the decency to call it deficit-sharing—which is what it was. Often, under this scheme of things, the faculty simply shared on an equal basis whatever funds were left after all other obligations were met. Such a policy was at least honest, and it was given a try at Trinity in North Carolina, Tusculum, Dickinson, and Illinois.<sup>36</sup>

Straight-forward salary cutting was often resorted to. In 1855 the professors at Hanover College were told that although their contracts called for salaries of \$800, they would have to get along that year on \$385.<sup>37</sup> A variety of other devices was perfected. Allegheny College in Pennsylvania closed down for a year in 1844 so that the faculty could go out and raise money.<sup>38</sup> McKendree College in Illinois closed the same year and opened in 1846, occasionally paying its professors with produce begged from area farmers.<sup>39</sup> In 1838 and again in 1858, appointments to the Williams faculty were made in the certainty that the partial, inadequate salaries paid by the college would be supplemented by the charity of the appointees' friends. From 1835 to 1852 chemistry at the same college was taught by a man of independent wealth whose token salary he spent on laboratory equipment.<sup>40</sup> At Dartmouth in 1853 a professorship in natural philosophy went to a wealthy man in part because he would have to be paid little or no salary.<sup>41</sup>

This exploitation of the college professors and the financial reliance which governing boards placed upon this exploitation requires explanation. Clearly there was among the professors a certain willingness to be exploited, a certain sense of Christian sacrifice which invited martyrdom on the altar of Christian learning. No other explanation can account for the action of the already underpaid professors at the University of Indiana who in 1848 divided the responsibilities of a vacant chair in mathematics and petitioned the governing board to appropriate the funds saved for books and scientific equipment.<sup>42</sup> The impulse which made so many professors clergymen also made them self-effacing, charitable, and willing workers in a worthy cause. They often accepted their inadequate salaries as evidence of the ways of a society that had mixed its values or they accepted them as being adequate enough in the fleeting life of this world.

<sup>35</sup> Skillman, *op. cit.*, I, p. 238.

<sup>36</sup> Nora Campbell Chaffin, *Trinity College, 1839-1892: The Beginnings of Duke University* (Durham: Duke University Press, 1950), p. 182; Allen E. Ragan, *A History of Tusculum College, 1794-1944* (Bristol: Tusculum Sesquicentennial Committee, 1945), pp. 64, 81; Morgan, *op. cit.*, p. 319 ff; Rammelkamp, *op. cit.*, p. 261.

<sup>37</sup> Millis, *op. cit.*, p. 66.

<sup>38</sup> Duvall, *op. cit.*, p. 110.

<sup>39</sup> *Ibid.*

<sup>40</sup> Rudolph, *op. cit.*, p. 53.

<sup>41</sup> Richardson, *op. cit.*, II, p. 506.

<sup>42</sup> Woodburn, *op. cit.*, I, p. 175.

This Christian virtue, this acquiescence in the nature of things, this self-sacrificing tendency surely lay at the basis of the rationalizations which enabled their employers almost to accuse college professors of lust after the world's goods if the professors so much as took an interest in three square meals a day. It took President Eliot to turn the low pay of professors into a national virtue. In his inaugural address of 1869 there were these comforting sentences: "The poverty of scholars is of inestimable worth in this money-getting nation. It maintains the true standards of virtue and honor. The poor friars, not the bishops, saved the Church. The poor scholars and preachers of duty defend the modern community against its own material prosperity. Luxury and learning are ill bedfellows."<sup>43</sup> There are all kinds of psychic income, but it is doubtful if many college professors thought that salving the conscience of a materialistic society was really a justification for their inadequate salaries.

In fact, they knew that their salaries were distressingly low and even the acquiescing Christians among them on occasion were forced to complain. The history of American higher education is full of petitions from complaining professors asking for modest raises; the literature of the country is full of public sympathy for the plight of the professors; and the annals of the colleges are full of the biographies of professors who flowed from one college to another seeking some element of financial security. One professor at Marietta College in 1864 asked for a year's leave of absence in the simple hope, as he put it, that he might "do better" by his family than he was "able to do in teaching." The Marietta board, which had a stake in his poverty, denied the request, and he resigned, went into the oil business, and made a considerable fortune which later permitted him to accept a professorship at Cornell.<sup>44</sup>

The question that must be asked of this pattern of underpayment is: Was it necessary? The answer is a resounding "Yes!" If the colleges were to stay in business, they would have to be sustained by their faculties. The choice was a simple one: the colleges could either pay their professors to teach or they could pay their students to enroll. They chose the latter course because it was the only way they could achieve the enrollment which justified their existence.

The evidence to support these conclusions is overwhelming. Moreover, the colleges were actually accused of making such a choice by Francis Wayland, the reforming president of Brown. In 1842 he concluded that "I doubt whether anyone could attract a respectable number of pupils . . . did it charge for tuition the fees which would be requisite to remunerate its officers at the rate ordinarily received by other professional men. . . . We cannot induce men to pursue a collegiate course unless we offer it vastly below its cost, if we do

<sup>43</sup> *Addresses at the Inauguration of Charles William Eliot as President of Harvard College, Tuesday, October 19, 1869* (Cambridge: Sever and Francis, 1869), p. 48.

<sup>44</sup> Beach, *op. cit.*, p. 170.

not give it away altogether." In desperation, he asked, "Can [a liberal education] . . . not be made to recommend itself; so that he who wishes to obtain it shall also be willing to pay for it?"<sup>45</sup> Wayland himself knew that the answer to his question was necessarily "No," as long as the American college insisted on holding rigidly to the prescribed classical course of study. Until the curriculum changed, the colleges, if they were to have students, would have to buy them.

Cumberland College in Tennessee, for instance, enrolled 800 pre-ministerial candidates between 1842 and 1876, and not one of them paid tuition.<sup>46</sup> Who paid the forty to fifty thousand dollars which the students did not pay? Members of the Cumberland faculty, their wives, their children. At Hanover in Indiana, a constant effort was made to reduce the percentage of costs paid by the student in order to increase enrollment.<sup>47</sup> At Brown in 1821 the treasurer's records showed almost \$6,000 in uncollected tuition bills and steward's bills, owed by alumni and students.<sup>48</sup> Of early Dartmouth one historian has said, "As time went on, [Eleazar Wheelock] . . . encountered no difficulty in securing sufficient numbers of students, so long as he charged them nothing for the services of the college."<sup>49</sup> His successors adopted a similar policy. In 1833 at Williams the five professors received salary reductions of \$100 each; the \$500 thus "saved" was immediately dissipated by remitting over \$500 in student tuitions.<sup>50</sup> By 1874 at Emory in Georgia, only 35 of a student body of 155 were paying tuition.<sup>51</sup>

The colleges were impelled to this decision to pay the students instead of the professors by two considerations—one, the desire to put on a more democratic appearance before a public that had interpreted the strength of the classical curriculum as a sign of aristocratic attachments; the other, the necessity of competing among an almost unlimited number of colleges for the rather limited number of students who could afford and who wished to avail themselves of the classical course of study. Thus, Princeton in 1827 in order to attract students and dispel its reputation as a rich man's college simultaneously reduced tuition and faculty salaries.<sup>52</sup> At Yale, President Jeremiah Day, worried about the moral and religious tone of a student body drawn too heavily from the privileged orders, began in about 1830 to encourage the growth of charity or scholarship funds.<sup>53</sup> Harvard in 1852 launched a cam-

<sup>45</sup> Francis Wayland, *Thoughts on the Present Collegiate System in the United States* (Boston: Gould, Kendall, and Lincoln, 1842), pp. 15-17.

<sup>46</sup> Bone, *op. cit.*, p. 264.

<sup>47</sup> Millis, *op. cit.*, p. 120.

<sup>48</sup> Bronson, *op. cit.*, p. 176.

<sup>49</sup> Richardson, *op. cit.*, I, p. 118.

<sup>50</sup> Rudolph, *op. cit.*, p. 11.

<sup>51</sup> Bullock, *op. cit.*, p. 161.

<sup>52</sup> Wertenbaker, *op. cit.*, p. 178.

<sup>53</sup> William Lathrop Kingsley, ed., *Yale College: A Sketch of Its History* (New York: Henry Holt, 1879), I, p. 142.

paign for scholarship funds with which to dissipate its reputation for wealth and snobbishness.<sup>54</sup> Few colleges were spared the rich man's reputation; they sought to overcome it by finding poor boys and persuading them to accept free tuition.

The remission of tuition and the growth of scholarship funds were also required by the endless multiplication of colleges without regard to the nature of the collegiate market. As the number of colleges increased, they found themselves bidding even higher for students. Tuition fees remained low while the cost of education went up; the hidden difference was paid by the faculty. All these tendencies would be accelerated or even exaggerated after the Civil War when state universities, land-grant colleges, technical institutes, and the old-time colleges would all be competing in the student market.

The meaning for the American college and for American life in general of this pattern of faculty exploitation was profound. It permitted the wealthy benefactor to indulge his desire for self-monumentation in buildings or to indulge a romantic fondness for poor promising boys in scholarships and at the same time to neglect the endowment of faculty salaries. It robbed a noble profession of dignity and thus reinforced the hired-help bias of many governing boards toward professors. It encouraged governing boards composed of men for whom \$100,000 incomes were not unusual, to exaggerate their own competence in educational matters rather than yield their opinions to men willing to put an annual value of \$2,500 on their skills. It alienated a large body of American intellectuals from the mainstream of American life.

In the 1870's when the faculty of the University of Illinois moved away from the environs of the university into the communities of Urbana and Champaign, according to Allan Nevins, "The citizens of the towns were inclined to rate the faculty men according to their own income, and to look upon them as a worthy but dependent class, unable to make return for social favors and to be treated with a veiled condescension." In the 1880's the faculty moved back to the neighborhood of the university, alienated, in retreat.<sup>55</sup>

The exploitation of the faculties may even have robbed the professors in some degree of that will to excel, that desire to achieve, which became so central to the American experience. What was there about a course of study which every student had to take and a confirmed policy of low salaries that might have encouraged a professor to individual exertion? "The system," said Francis Wayland, "has . . . removed all the ordinary stimulants to professional effort."<sup>56</sup> The system, it must also be admitted, saved the colleges, even as it degraded the profession of teaching and helped to alienate the professor from American life. Who paid the bills? The professors, but the cost to the whole intellectual quality of American life was tremendous.

<sup>54</sup> Morison, *op. cit.*, p. 295.

<sup>55</sup> Allan Nevins, *Illinois* (New York: Oxford University Press, 1917), pp. 106-7.

<sup>56</sup> Wayland, *op. cit.*, p. 27.

# The Education of Franklin D. Roosevelt

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IF FRANKLIN D. ROOSEVELT had ever written a memoir of his upbringing, it might well have been as sardonic and little revealing of inner feelings as was *The Education of Henry Adams*. This is not to imply that it would otherwise have been similar. Roosevelt was quick throughout his career to pay tribute to the influence of his parents, Theodore Roosevelt, Rector Peabody of Groton, and his teachers at Harvard. He did so with the automatic sentimentalism which was part of his upbringing as well as a politician's stock in trade, and quite contrary to the bitter spirit of Adams. Unlike the contemplative Adams, Roosevelt does not seem to have thought much about his inner self, and if he did occasionally think long thoughts he was reluctant to share them even with the wife he adored.<sup>1</sup>

Yet Roosevelt was at certain points quite critical of the education which had undeniably placed its mold upon him. Every now and then he set the realities of life experience against the artificialities of the classroom and found the classroom wanting. There had been this curious dissatisfaction on the part of the outward conformist even as he was finishing his Harvard training. His studies, he complained to his roommate, Lathrop Brown, had been "like an electric lamp that hasn't any wire. You need the lamp for light, but it's useless unless you can switch it on."<sup>2</sup> Later, in the 1920's, Roosevelt repeatedly expressed his fear that Harvard was too provincial, too out of touch with realities. "Sometimes I wonder just a little if Harvard is not suffering from a slight infection of the same disease which is making industrial and business New England so sick at the present time," he complained to a classmate.<sup>3</sup> For a while he thought of sending his son James to the University of Wisconsin

<sup>1</sup> For a detailed analysis of Roosevelt's schooling, see Frank Freidel, *Franklin D. Roosevelt: The Apprenticeship* (Boston, Little, Brown, and Co., 1952), pp. 20-77.

<sup>2</sup> Earle Looker, *This Man Roosevelt* (New York, Fleming H. Revell Co., 1932), p. 32.

<sup>3</sup> Roosevelt to Sidney Gunn, August 23, 1928, Roosevelt papers, Roosevelt Library, Hyde Park, New York. All manuscripts subsequently cited unless otherwise identified are from this collection. I am grateful to Herman Kahn, Director of the Roosevelt Library for permission to quote from them.

sin; ultimately he allowed James to enter Harvard, but forced him to spend the summer of 1926 at gruelling manual labor in a Canadian pulp mill.<sup>4</sup> It was this same attitude that dominated Roosevelt's thinking years later when, in 1941, speaking extemporaneously before a conference of Dutchess County, New York teachers, he lamented that the Hyde Park school of a generation earlier had refused to teach carpentry to the boys but instead offered a course in comparative anatomy. Schools by 1941 were offering a good many more applied courses, but he wondered if they were being practical enough in preparing boys and girls to meet the challenges that awaited them when they began work:

"I always think of that case of my own, when I had gone through school, and gone through college, and then gone to a law school for three years—duly admitted to the bar—a full-fledged lawyer. I went to a big law office in New York, and somebody the day after I got there said, 'Go up and answer the calendar call in the Supreme Court tomorrow morning.' . . . I had never been in a court of law in my life."<sup>5</sup>

What, then, of the theoretical grounding that Roosevelt had received? From the perspective of nearly two terms in the White House facing the perplexing problems of serious and chronic depression, Roosevelt took a jaundiced view of it. Had his thorough study of economics been of aid to him? Not so, he told the Dutchess County teachers:

"Well, of course, there is no such thing, I have always claimed, as a proven system of economics. I took economics courses in college for four years and everything that I was taught was wrong. The economics of the beginning of this century are completely out of date. Why? Experience. Things have happened. Wars have gone on. World trade is a very different thing from what it was, and national economics—so-called—is a very different thing from what it was in the old days."<sup>6</sup>

Not only Roosevelt's own iconoclasm but also the factual record create pitfalls for the researcher who would neatly equate the content of Roosevelt's courses in preparatory school and college with his actions as a national leader. Any biographer would be tempted to attribute one of Roosevelt's most famous campaign statements of 1932—"There is no safety valve in the form of a Western prairie to which those thrown out of work by the Eastern economic machines can go for a new start"—to the direct influence upon him of

<sup>4</sup> James Roosevelt and Sidney Shaillett, *Affectionately, F.D.R.* (New York, Harcourt, Brace, and Co., 1959), pp. 176-178; Roosevelt to Endicott Peabody, January 16, 1926.

<sup>5</sup> Roosevelt, *Public Papers and Addresses*, 1941 volume (New York, Random House, 1950), pp. 457-458.

<sup>6</sup> *Ibid.*, p. 460.

Frederick Jackson Turner. After all, in the spring term of 1904, Roosevelt enrolled for History 10B, Turner's "Development of the West." What ruins the cause-and-effect relationship are two facts—first, that Roosevelt spent the first six weeks of Turner's course on a cruise in the Caribbean, and second, that the famous statement of 1932 was the handiwork of his speech-writers, probably of Adolph A. Berle.<sup>7</sup> Again, when one morning in March, 1933, President Roosevelt proposed to his adviser, Raymond Moley, that an army of young unemployed men be put to work in the nation's forests, Moley, dazzled with the brilliance of the idea remarked its similarity to William James's suggestion in "The Moral Equivalent of War," and asked if Roosevelt had not been influenced by some memory from his student days. "He admitted there might be some connection, though he wasn't consciously aware of it. And then he went on..."<sup>8</sup> As Moley has pointed out with considerable insight, the influences upon Roosevelt were of a more general sort:

"I suppose it was significant that Roosevelt's formative years were coincidental with the growing ascendancy in American thought of William James' pragmatism. At any rate, in the realm of economics and politics, Roosevelt carried to its logical and perhaps tragic ultimate the philosophy of trial and error so joyously preached by James. I have never known a man so receptive to the new and unorthodox."<sup>9</sup>

Certain it is that Roosevelt did not acquire his renowned political pragmatism sitting at the feet of James. The only course in philosophy for which he ever enrolled was Josiah Royce's lectures on logic. In 1922, when he became Chairman of the Committee on Philosophy and Psychology of the Board of Overseers, he commented, "Why I was ever made Chairman of this particular Committee, an inscrutable Providence has not yet informed me. Probably it was because of the fact that while in college I only took one course in Philosophy and dropped that after three weeks."<sup>10</sup> One trying to locate the sources of Roosevelt's pragmatism would have to examine his boyhood habit of modifying his conduct to please his elders, and to consider not only the Jamesian pragmatism in his intellectual environment but also the rugged Tammany variety so rudely impressed upon him during his political bouts with Boss Charles F. Murphy between 1910 and 1918.

Certainly Roosevelt bore all of his life the marks of his education, both within the family, at school and college, and in the arena of New York politics. Family tradition was a most important ingredient in molding his character. He was born into that very small class of Americans who had inherited modest

<sup>7</sup> *Ibid.*, 1928-1932 volume, p. 750; Freidel, *Roosevelt: The Apprenticeship*, pp. 70-71; Raymond Moley, *After Seven Years* (New York, Harper and Brothers, 1939), p. 58n.

<sup>8</sup> Moley, *op. cit.*, pp. 173-174.

<sup>9</sup> *Ibid.*, p. 365.

<sup>10</sup> Roosevelt to Jerome D. Greene, July 10, 1922.

wealth generation after generation and who were of the highest social standing. His half-brother had married an Astor and was one of the "four hundred" of New York society; his father was the American counterpart of the English country squire, playing an important patriarchal role in the affairs of the village of Hyde Park, New York. He and his family fulfilled their patrician obligations toward the masses at the same time that they did not covet the vulgar millions of the newly rich railroad, steel, and oil magnates. One associated only with one's social equals, who for the most part were one's relatives. Small boys might romp with their parents, but they were expected to be clean, courteous, and punctual. If they suffered pain or unhappiness they were expected to be stoic even within the family. Once when Roosevelt, in his teens, was gashed in the forehead while travelling with his parents in their private railroad car, he spent most of the day on the observation platform, with a cap well down over the bandaged wound so that his father would not detect it and be alarmed.<sup>11</sup> It was almost second nature for Roosevelt to take pride in his family and ancestors, to move with the ease that came with assured social position, to seek to be pleasant to those around him, and to keep his real feelings largely to himself.

Roosevelt's education fitted his patrician background. His only knowledge of the public school in Hyde Park was indirect, since he himself had received private instruction from an early age. He missed the give-and-take of adjusting to a classroom of other children, but his instructors took advantage of his quick bright mind to teach him the three R's in German and French while his public school counterparts were struggling to learn them in English. When he was six years old, in the fall of 1888, he began studying with some neighbor's children with a German governess, Fräulein Reinhardt. From 1891 to 1893 he worked diligently with a Swiss governess, Mlle. Jeanne Sandoz, who not only drilled him in French and English, but also passed on to him some rudiments of her own strong social consciousness. In a composition about Egypt that he wrote when he was nine, he declared, "The working people had nothing. . . . The kings made them work so hard and gave them so little that by wingol they nearly starved and by jinks! they had hardly any clothes so they died in quadrillions."<sup>12</sup>

Shortly after Roosevelt was first elected President, he wrote to Mlle. Sandoz, "I have often thought that it was you, more than anyone else, who laid the foundation for my education. The lessons in French which I began at that time have stood me in good stead during all these years."<sup>13</sup> The German

<sup>11</sup> Rita Halle Kleeman, *Gracious Lady: The Life of Sara Delano Roosevelt* (New York, Appleton-Century Co., Inc., 1935), p. 178.

<sup>12</sup> Elliott Roosevelt, editor, *F. D. R., His Personal Letters* (3 vols., New York, Duell, Pearce, and Sloan, 1947-1950), I, 13, hereafter cited as PL. Grade books, copy books, and exercises for the period when Roosevelt was tutored by Mlle. Sandoz are in the Roosevelt mss.

<sup>13</sup> Mlle. Sandoz to Roosevelt, January 30, 1938.

governess had to leave Hyde Park for treatment in a sanitarium; Mlle. Sandoz departed to be married. Roosevelt always liked to wisecrack that he had driven one governess to insanity and the other to matrimony.

In addition to his study of French and German at home, Roosevelt spent several months each year abroad, so that England, France, and Germany became as familiar to him as the Hudson River Valley. For about six weeks, during the summer he was nine, he had his only experience attending public school. It was a small *Volksschule* at Bad Nauheim in which his mother enrolled him to improve his German. He wrote to cousins, "I go to the public school with a lot of little mickies and we have German reading, German dictation, the history of Siegfried, and arithmetic in which I am to '14 x 71' on paper, and I like it very much."<sup>14</sup>

Roosevelt never forgot the new courses in map reading and military topography which had been recently introduced by Emperor William II. In 1945 on his return from Yalta, he cited them to newspapermen as examples of German planning for war.<sup>15</sup>

This was the background of Roosevelt when, in the fall of 1896, not yet fifteen, he was enrolled in Groton School. More familiar with Europe than with the American hinterland, speaking English with what seemed to be something of a foreign accent, he seemed too high-toned even to the Groton students, 90% of whom came from social register families. To this point, his preparation seemed scarcely to be that for a future Democratic President, a champion of the common man. Yet, since it had made him familiar with western Europe, and at ease with Europeans, it had been an invaluable background for a President whose task it would be to play a critical role in world affairs. In one respect it may have been detrimental: his ability to understand the English, the French, and the Germans may have led to his self-assurance as President that he could calculate accurately the motivations and objectives of the Japanese and Russians, who functioned from quite different bases of thought.

The role of Groton School in Roosevelt's training was different. What he learned from the boys there was rather more painful than what came from the masters: that he must modify his personality to meet with the approval of his classmates. It is amusing to think of the Grotonians as looking upon Roosevelt with some disfavor, as being perhaps too snobbish in his tastes. When his parents sent him *Punch* and the *Spectator*, he remarked, "They were most welcome to me . . . [though] hardly appreciated by others, as they are 'so English you know.'"<sup>16</sup> In order to survive hazing at the hands of his

<sup>14</sup> Kleeman, *op. cit.*, pp. 161-162; PL, I, 20; Christian Bommersheim to Roosevelt family, July 1, 1891; *New York Times*, January 17, 1933.

<sup>15</sup> Roosevelt, *Public Papers and Addresses*, 1944-1945 volume, p. 560; interview with Eleanor Roosevelt, May 1, 1948.

<sup>16</sup> PL, I, 315.

contemporaries, Roosevelt had to assume a quiet conformity, the proper "tone." This he successfully did. After some months when it appeared that his perfect behavior had not been quite what was expected of him, he acted a bit obstreperous in class, but not obstreperous enough to have to make a frightening visit to the Rector. He even battered himself in athletic competitions for which his tall, thin build made him quite unsuited. Throughout the four years he succeeded only in making himself inconspicuous, not popular, and popularity he had craved. He had entered two years later than his contemporaries, who had already formed their close friendships. Roosevelt was to insist that his own sons enter at twelve, although their mother worried over sending them away from home so young. Still, the ability to give the appearance of conformity could be a strong shield in the armory of a politician, even though displaying the correct tone at Groton was a world apart from demonstrating that one was a regular fellow among organization Democrats. It was a trait essential for survival.<sup>17</sup>

From Rector Endicott Peabody and the masters, Roosevelt learned more. They underscored the obligation to offer a helping hand to the unfortunate. Roosevelt had long since absorbed the *noblesse oblige* credo from his parents; at Groton it became a way of life. Peabody, born of a wealthy New England family, educated at Cheltenham School and Cambridge University, had transported to America the doctrines of the Church of England and Professor Charles Kingsley of Cambridge—doctrines of Tory social reform. At Groton he exposed young Americans of good family to an artificially austere way of life, and by means of exhortation and example tried to dedicate them to service to their God, their nation, and the less fortunate.<sup>18</sup> If one is to judge by what Peabody told his students, he would have been happiest if he could have turned Roosevelt into a missionary. "Missions," he asserted about 1906, "are the grandest work in the world, and the missionaries are the heroes of our times." And again, "Boys, I would rather you would each one be a foreign missionary than president of the United States."<sup>19</sup> Roosevelt did engage in home mission work at Groton, throughout one winter aiding an aged Negro woman, and for a time one summer working in a camp Groton maintained for boys from the Boston slums. But the call to public life was almost as strong, and much more exciting, especially when personified by Franklin's distant relative, Theodore Roosevelt, whom Peabody would liked to have had as one of the masters. Theodore Roosevelt, the new Assistant Secretary of the Navy, came to Groton in the summer of 1897 to tell the boys how, as New York

<sup>17</sup> Roosevelt's extensive correspondence with his parents during his Groton years is in PL, I, 29-416.

<sup>18</sup> Frank D. Ashburn, *Peabody of Groton* (New York, Coward McCann, Inc., 1944); Cleveland Amory, "Goodbye, Mr. Peabs," *Saturday Evening Post* (September 14, 1940), 213:69; George Biddle, "As I Remember Groton School," *Harper's* (August, 1939), 179:300.

<sup>19</sup> *The One Hundredth Anniversary of the Haystack Prayer Meeting....* (Boston, 1907), pp. 354-355. I am indebted to Valentin Rabe for these quotations.

Police Commissioner, he had thwarted the forces of darkness. "After supper tonight Cousin Theodore gave us a splendid talk on his adventures when he was on the Police Board," Roosevelt reported to his parents. "He kept the whole room in an uproar for over an hour, by telling us killing stories about policemen and their doings in New York."<sup>20</sup> In years that followed, when Theodore Roosevelt had become President and Franklin had married his favorite niece, Eleanor, the exhortations to enter public service became even more irresistible. Certainly it was the urging of Theodore Roosevelt, even more than the preaching of Peabody, that impelled Roosevelt toward his career.

Yet most Grotonians, upon finishing their education, entered their fathers' brokerage houses, law firms, or businesses, and when Roosevelt embarked upon the New Deal they denounced him savagely as a traitor to his class. For them, Peabody's teachings had meant engagement by them in philanthropic enterprises, not intervention by the government, to aid the ill-fed, ill-clad, and ill-housed; and, certainly, not the furnishing of collective bargaining weapons to the ill-paid workingman with which to improve his lot. Thus far did Roosevelt the President move beyond the gospel of wealth tradition of his forbears and the Episcopalian schools—but not, it should be added, beyond the spirit of Peabody. In 1932 the aged Rector rather sorrowfully voted for Hoover as the better man, but as Roosevelt's program unfolded he voted proudly—in 1936 and again in 1940—for the old boy who had upheld his teachings.<sup>21</sup>

All this does not take into account Roosevelt's classwork at Groton, because it clearly was of secondary importance, being largely of the ornamental sort expected of a turn-of-the-century gentleman. The curriculum was heavily weighted with classical and modern languages, with some science and mathematics, and only at one point touched the contemporary United States. It was the sort of program that drew Roosevelt's complaints as an adult, even as it was the kind that many educational reformers of the 1960's would like to restore in secondary schools. In the sixth form, Roosevelt took the one course which was an exception: "Political Economy—Topics of the Day. Banking, Currency, Trusts, Municipal Government, Foreign Politics."<sup>22</sup> Indicative of the course are these notes that Roosevelt jotted: "Gold is stable, silver is unstable, therefore gold is the only suitable standard of value." On labor: "Trade Unions . . . can resist unjust exactions by the employers by means of strikes. A strike is like a war, costly and cruel, and it would seem that boards of arbitration are the rational way of settling differences between Capital and

<sup>20</sup> PL, I, 110.

<sup>21</sup> Ashburn, *op. cit.*, pp. 340-351.

<sup>22</sup> The curriculum is in *Groton School, 1899-1900* (Ayer, Mass., [1899]); for an analysis of the course in political economy, see D. R. Fusfeld, *The Economic Thought of Franklin D. Roosevelt and the Origins of the New Deal* (New York: Columbia University Press, 1956), pp. 17-20.

Labor."<sup>23</sup> As President, Roosevelt almost instantly abandoned this monetary theory; in his own thinking, he never really departed from the Groton view of strikes. Roosevelt also was exposed to contemporary affairs by his participation in school debates, in which, interestingly, sides were assigned arbitrarily, but in which Roosevelt usually found himself arguing against imperialism. In January, 1898, he spoke for the negative, on the question, "Resolved, that Hawaii be promptly annexed." He asserted, "We should for the first time in our history have a vulnerable point . . . If we own the Islands it means that we must protect them, and to do that we should have not only to fortify the Islands themselves but also maintain a much larger navy."<sup>24</sup>

At Harvard, Roosevelt, like most of the young gentlemen arriving from the elite schools, regarded course work as of secondary importance. For him and his contemporaries, the fraction of the students who lived sumptuously in the private dormitories along the Mt. Auburn Street "Gold Coast," strenuousness had supplanted the indifference of an earlier generation, but it was strenuousness in extra-curricular activities rather than in scholarship. It took remarkable determination and stamina for Roosevelt to pursue his studies, his extra-curricular activities, and his social life, and yet maintain "C's" in his courses. His proudest achievement was to win the presidency of the *Crimson*. From this eminence he editorially admonished the entering freshman to take seriously the responsibilities that faced him at Harvard—"Responsibility to the University, to his class, and to himself!" He explained: "The only way to fulfill this is to be always active. The opportunities are almost unlimited: There are athletics—a dozen kinds—and athletic managements, literary work on the University publications and the outside press, philanthropic and religious work, and the many other interests that are bound to exist." Roosevelt enumerated almost every possibility except scholarship.<sup>25</sup>

This was the pattern of Roosevelt's four years at Harvard. He did take a number of the very distinguished courses then being offered, and undoubtedly they did have a significant overall effect in helping to shape the fundamental assumptions he carried with him through his terms in the White House. The numerous courses in history, under men as distinguished as Edward Channing, Roger Bigelow Merriman, and Frederick Jackson Turner, may or may not have impressed upon him particulars, like Turner's theories of the frontier, but they did lastingly lead him to take an historic view of contemporary problems. They helped to imbue him with a strong sense of historicity. More important, his Harvard economics courses—regardless of what he himself had come to believe in 1940 about economics—did give him a lasting viewpoint of the 1901-1904 level of thought: classical laissez-faire, which in those progressive years his instructors thought might best be restored by the

<sup>23</sup> The notebook is in the Roosevelt papers.

<sup>24</sup> PL, I, 160-164.

<sup>25</sup> *Harvard Crimson*, September 30, 1903, cited in PL, I, 502-504.

rather limited action of the Government from the erosion inflicted by the great trusts and combinations. While he was a student at Harvard, Roosevelt was personally friendly with A. Piatt Andrew, then one of his economics instructors and later Assistant Secretary of the Treasury in the Taft administration, and on one occasion went duck-hunting with him. According to Daniel Fusfeld, who has analyzed Andrew's lectures, Andrew "showed a critical, reforming bent within the framework of his traditional economic theory." Roosevelt also studied under William Z. Ripley, who strongly urged government regulation of railroads and corporations, and took courses on banking, under Oliver W. M. Sprague, whose writings helped prepare the way for the Federal Reserve System. At the beginning of the New Deal, Roosevelt appointed Sprague as one of his chief monetary advisers, but became unjustly furious with him for disapproving of New Deal currency manipulation schemes.<sup>26</sup>

Teachings of this sort formed a base for Roosevelt's thinking and help to explain why he never really became a Keynesian and why throughout the New Deal he put up more resistance than is realized against the "spending school." On the one hand, in 1940, he would scoff at his conventional economics training at Harvard, and on the other would retort to Mrs. Roosevelt when she forwarded to him an elaborate multi-billion dollar scheme for national improvement that, while the projects would be most desirable, she should ask the proponents where the money to finance the schemes was to come from.

The effects of Roosevelt's extracurricular zeal at Harvard are also of consequence. Extracurricular activity gave him an opportunity to exercise leadership and even to gain a considerable measure of popularity. He was not as popular among the elite as he would have liked to have been, and according to Eleanor Roosevelt was upset over his failure to be elected to the most exclusive of the undergraduate clubs, the Porcellian. It is as good a guess as any that the cause of this failure was a headline-making scandal involving his nephew. Whatever the reason, he failed in this candidacy and in his candidacy to become a Class Marshal. (He was elected Permanent Chairman of the Class Committee.) The effect of his failures, Mrs. Roosevelt thinks, was to cause him to be more democratic than he otherwise might have been—to pay more attention to those in his class who were not from preparatory schools. Certain it is that he managed the *Crimson* with remarkable ease. His distinguished classmate, Rev. W. Russell Bowie, has recalled, "In his geniality was a kind of frictionless command."<sup>27</sup>

<sup>26</sup> There is a valuable analysis of these courses in Fusfeld, *op. cit.*, pp. 23-36.

<sup>27</sup> Harvard *Crimson*, December 17, 19, 1903; interview with Eleanor Roosevelt, May 1, 1948; *Harvard Alumni Bulletin* (April 28, 1945) 48:444. A Harvard intimate, who wishes his name withheld, recalls, "Franklin was not a typical club man of his generation at College. He had more on his mind than sitting in the Club's front window, doing nothing and

Columbia Law School did not interest Roosevelt. In the winter of 1904-1905 he was engrossed in New York social life and in preparations for his marriage on St. Patrick's Day to Eleanor Roosevelt. President Theodore Roosevelt gave away the bride. In the spring of his last year at law school, after he had passed the bar examinations, he was so little interested in his law degree that he did not bother to finish his courses. As a law clerk in a Wall Street firm during the next several years he demonstrated similar boredom, and it was only in the fall of 1910, when he entered politics in an apparently hopeless race for State Senator from a Hudson River district, that he suddenly became alive and began to demonstrate his extraordinary talents.

To what extent had his education prepared him for his phenomenal career as politician and President? Undoubtedly much better and in more important ways than he ever quite realized. After his own class ceremonies at Harvard in June, 1904, he went to Groton to listen to President Theodore Roosevelt speak at the celebration of the twentieth Prize Day. "Much has been given you," the President declared; "therefore we have a right to expect much from you." Franklin D. Roosevelt lived up to these expectations.

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criticizing the passers-by. Thus his not 'making' the Porcellian meant only that he was free of any possible restraining influence of a lot of delightful people who thought that the world belonged to them, and who did not want to change anything in it."

# Progressivism in American Education, 1880-1900

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## INTRODUCTION

THE RAPID growth of sprawling, slum-ridden cities challenged no article of nineteenth-century American faith more than the belief that the education of children would guarantee an ever brightening future for rising generations. A glimpse of the response of public-spirited citizens to this challenge may be seen in the campaigns which they waged in numerous cities to reform and expand the public schools.

In New York, for example, a commission appointed by the mayor in 1893 proposed state legislation authorizing the metropolis to transfer the powers of the independent school districts, hitherto exercised by trustees chosen from among precinct politicians, to the city superintendent and the board of education. The bill failed to pass. The next year, a confederation of "Good Government Clubs," led by the famous "Committee of Seventy," made school reform a central part of their platform. They succeeded in overthrowing Tammany Hall in the election of November, 1894. The unit known as Good Government Club E, in which Nicholas Murray Butler, president of the new Teachers College, Columbia, and publicist Jacob Riis played key roles, assumed responsibility for educational legislation. William W. Locke, a Methodist minister who was chairman of Club E, announced in December a thoroughgoing investigation of the pitifully inadequate accommodations, especially in tenement-house districts, the poor provisions for ventilation, light and sanitation, the neglect of kindergartens and manual training, and the prostitution of education to politics.

Locke urged women especially to support efforts at reform. They understood better than men the needs of children, he said, and many of them served as teachers in the schools. The fruit of his suggestion was the organization in February, 1895, of the Womens Association for Improving the Public Schools, later known as the Public Education Association of New York City. This group championed faithfully most of the program of what was there-

after called "progressive education," slowly winning out over the bitter opposition of many principals and public school teachers.<sup>1</sup>

The records of this and of similar campaigns in Boston, Philadelphia, Baltimore, and Chicago, suggest the importance of the two questions which this study seeks to answer: Where did the "new education" come from? And what was its relationship to the wider movement in American life and politics called progressivism?

The answers are important for the light they may shed on the history of the nation as well as the schools. Richard C. Hofstadter, George F. Mowry, Arthur Mann, and Arthur S. Link have recently demonstrated that the social and political groundswell which thrust Theodore Roosevelt and Woodrow Wilson into the presidency was a predominantly urban phenomenon, essentially conservative and religious in nature. Its leaders were chiefly Protestant and from the best families: lawyers, clergymen, educators, social workers, and businessmen. They felt the traditional values of American democracy, the old modes of free competitive enterprise, and their own customary pre-eminence in society threatened from above and below. They resented the immense power which a newly-rich class of oil, steel and railroad magnates had achieved. They feared even more the organization of militant labor unions, the socialist agitation against property, and the corrupt urban political machines which seemed to feed upon the saloon, the slum, and the immigrant vote. The "progressive" program called for the elimination of corruption in civic affairs, the "Americanization" of the immigrant, the regulation or destruction of business monopolies, and the resolution of conflicts between capital and labor, farmer and businessman, by writing the Golden Rule into law. All of this bespoke the past. What was new was the philosophy that strong government was not an evil but a positive good—a divinely appointed instrument to build a new society free of ignorance, poverty, greed, and strife.<sup>2</sup>

<sup>1</sup> For a consecutive documentary account of this movement, see the following pamphlets: Stephen H. Olin, *Public School Reform in New York* (New York: Good Government Club E Literature No 1, 1891); Good Government Club E, New York, "Leaflet No 1," December 1, 1891; "Leaflet No 2," January 8, 1892; and Leaflet No 3, February 1, 1892; *Public School Buildings in New York City. Their Condition as Shown in Official Reports* (New York: Good Government Club E Publications, No 7, 1895), 15, 8-12-13; and *Circular on Schools*; *Circular Letter to the Delegates*. (New York: Good Government Club E Publications, No 8, 1895), 1-9. See also the summary in Nicholas Murray Butler's editorial, *The Educational Review*, X (June, 1895), 98-103; comments in Jacob Rader *The War with the Negro* (New York: Macmillan Company, 1902), 369-378; and the provocative essay by Lawrence A. Cremin, "The Progressive Movement in American Education: A Perspective," *Harvard Educational Review*, XXVII (Fall, 1957), 251-270.

<sup>2</sup> See Richard C. Hofstadter, *The Age of Reform from Bryan to F.D.R.* (New York: A.A. Knopf, 1955), 131-172; Arthur Mann, *Yankee Reforms in the Urban Age* (Cambridge, Mass.: Harvard University Press, 1954), 1-23, 229-235, and *passim*; George F. Mowry, *The California Progressives* (Berkeley, Calif.: The University of California Press, 1951), 97-101; Arthur S. Link, *Wilson. The Road to the White House* (Princeton, N.J.: Princeton University Press, 1947), 94-95, 111-119, 122-131; and Charles W. Dabbs, *Universal Education in the South* (2 vols., Chapel Hill, N.C.: The University of North Carolina Press, 1936), I, 234-245, 320-408.

An initial survey of the evidence at hand indicates that the movement to reform American education may have been a catalyst of this larger crusade for social justice. It originated not so much among schoolmen as social workers. It was nurtured in ethical and religious idealism, having evangelical, transcendentalist, Catholic, and Jewish roots, rather than in scientific pragmatism. And its program was imposed upon the public school system by pressure groups composed chiefly of middle-class citizens who were identified with the wider agitation for social and political reform. Professor John Dewey's pragmatism, both as a philosophy and a method for the schools, appears in this context more as an offspring than a parent of progressive education. By 1899, when he published *School and Society*, social settlement workers, pastors of institutional churches, directors of charitable kindergartens and industrial schools, crusaders for tenement-house legislation, temperance leaders, and the faculties of both progressive teachers colleges and of the new graduate universities had co-operated for nearly a decade in a pattern of action whose goal was to achieve a better environment for children in home, school and community, and hence a "purer" national life.

### THE IMPULSE TO EDUCATIONAL REFORM

The stimulus to educational, as to other types of reform, was the series of social earthquakes which began with the emancipation of the Negro during the Civil War and was climaxed by the mass immigration of Eastern Europeans forty years later. In the intervening decades the acceleration of the industrial revolution in both the North and the South dislocated family and community life for native white Americans as well. A huge migration set in from the countryside to factory towns and cities. The mechanization and commercialization of agriculture thrust even those who remained on the farm into the mad race of the market place. Not just the immigrants, of whom Professor Oscar Handlin has written so eloquently, but the Negroes, the poor whites of "milltown," and the marginal workers in both farm and factory communities were an uprooted multitude.<sup>3</sup> All of the institutions traditionally relied upon to educate the young—the family, the church, the apprenticeship system, and the public school—seemed inadequate.<sup>4</sup>

<sup>3</sup> Oscar Handlin, *The Uprooted: the Epic Story of the Great Migrations that Made the American People* (Boston: Little, Brown and Company, 1951), 63-116; C. Vann Woodward, *The Origins of the New South* (Baton Rouge, La.: Louisiana State University Press, 1951), 108-111, 135-139, 176-177, 207-208; Jacob A. Riis, *The Children of the Poor* (New York: Scribner's, 1892), 1-9, 35-43, and *passim*.

<sup>4</sup> Paul Douglas, *American Apprenticeship and Industrial Education* ("Columbia University Studies in History, Economics, and Public Law," No. 216; New York: Columbia University Press, 1921), 53-85; Richard G. White, "The Public School Failure," *North American Review*, CXXXI (December, 1880), 544-550; W. R. Stewart, *The Philanthropic Work of Josephine Shaw Lowell...* (New York: The Macmillan Company, 1911), 257-260; E. W. Bemis, "Relation of Trades-Unions to Apprentices," *The Journal of Social Science*, XXVII (October, 1891), 108-119; Joseph M. Rice, "Need School Be a Blight to Child-Life?" *The Forum*, XII

Social workers laboring to protect the classes most deeply affected by social disorganization—the Negro, the indigent child, and the immigrant—were understandably the first to realize the dimensions of the crisis and the necessity for reform. Idealistic and essentially conservative, they turned naturally to educational remedies, especially those which promised to rejuvenate rather than to replace traditional institutions. For these reasons, one can learn more about the origins of progressive education from the literature of charity than of pedagogy, and more from the story of privately-sponsored than of public schools.

What the proponents called until around 1910 the "new education" combined three elements: vocational training or "education for life," the child-centered school, and social reform. The first, worked out in charitable industrial schools for freed Negroes and dependent children, called for a broadening of the curriculum to encompass the occupational, civic, and moral training which the family seemed no longer able to provide. The new subjects were the mechanical, agricultural, and household arts; the social studies, especially civics and geography; hygiene and physical culture; and moral instruction, grounded in religious faith but executed by practice in ethical decision-making. The hope was thus to produce in children a "character" suited to the needs of the times: industrious, clean, thrifty, law-abiding, tolerant, compassionate, and duly reverent toward both God and mammon. The tendency to subject the child to the standards of whatever social class dominated the adult world was obvious. For Southern Negro children, certainly, this meant acquiescence in second-class citizenship.<sup>5</sup>

The kindergarten movement, spreading simultaneously out of the same humanitarian urge to help poor children, provided the needed balance with its *new method* of child-centered schooling. Kindergarten leaders insisted that creative direction of the play of pre-school youngsters would draw them "naturally" into the co-operative work which should characterize their training in later years. Consequently, they urged a reorganization of the elementary school curriculum in harmony with the unfolding interests of the child's real life. The method they advocated stressed learning by activity, rather than by memorization; correlation of subject matter around the child's own widening experiences; enrichment of classroom study with materials drawn from the school's immediate environment, both natural and social; and the substitution of love for fear, of interest for authority, in classroom discipline. What made

(December, 1891), 529-535; Dabney, I, 457-469; and Charles Zueblin, *American Municipal Progress: Chapters in Municipal Sociology* ("The Citizens Library of Economics, Politics, and Sociology," ed. Richard T. Ely; New York: The Macmillan Company, 1902), 132-173.

<sup>6</sup> Riis, *Children of the Poor*, 187-215; Joseph Lee, *Constructive and Preventive Philanthropy* (New York: The Macmillan Company, 1902), 202-217; Walter A. Jessup, *The Social Factors Affecting Special Supervision in the Public Schools of the United States* ("Teachers College, Columbia University, Contributions to Education," No. 43; New York: Columbia University Press, 1911), 82-63; and Dabney, I, 453-529.

this new method acceptable to the advocates of vocational education was the fact that it promised to make the teaching of the new subject-matter more efficient. The kindergarteners called their system "scientific pedagogy." Their temper and aims, however, were conservative and moral, indeed profoundly spiritual.

Friendly critics pointed out from the beginning the ease with which the liberty of the child-centered school could run to license, with the teacher abdicating responsibility for discipline and direction, and the pupils pursuing merely individual rather than social objectives. What seemed necessary was a synthesis of the culture-directed and the child-centered ideas.<sup>6</sup>

That synthesis was provided, in fine Hegelian fashion, by the social settlement house movement of the 1890's. An army of idealistic, college-bred men and women demonstrated first in fact and later in theory that an educational center, linking learning with both individual and community needs, could regenerate a neighborhood and so contribute to the reformation of city and national life. To Jane Addams and Robert A. Woods, "education for democracy" meant teaching which, whether in kindergartens or boys clubs, classrooms or workshops, mother's meetings or social science lectures, aimed at the reconstruction of American society through the redemptive power of human brotherhood.<sup>7</sup> They assigned the schools a *creative social function*.

A brief glance at the history of educational work in industrial schools, kindergartens, and settlement houses will help further to illustrate these points.

#### INDUSTRIAL EDUCATION, NORTH AND SOUTH

Charles Loring Brace, founder of the New York Children's Aid Society, and Samuel Chapman Armstrong, first head of Hampton Institute, Virginia, were the trailbreakers of the movement for vocational education. Brace had

<sup>6</sup> Useful contemporary summaries are Constance MacKenzie, "Free Kindergartens," National Conference of Charities and Correction (abbreviated hereinafter as NCCC), *Proceedings* (1886), 48-53; Riis, *Children of the Poor*, 174-186.

For discussion of the issues involved in the application of kindergarten principles to elementary instruction, see National Educational Association (abbreviated hereinafter as NEA), *Proceedings*, as follows: (1877), 186-188, 204-207; William T. Harris, "The Kindergarten Methods Contrasted with the Methods of the American Primary School" (1889), 448-455; W. N. Hailmann, "Schoolishness in the Kindergarten" (1890), 567-569; Sarah B. Cooper, "The Organic Union of Kindergarten and Primary School" (1893), 336-342. See also Joseph Mayer Rice, *The Public-School System of the United States* (New York: The Century Company, 1893), 205-208.

<sup>7</sup> See William Jewett Tucker, "The Work of the Andover House in Boston," in Robert A. Woods and others, *The Poor in Great Cities; Their Problems and What is Doing to Solve Them* (New York: C. Scribner's Sons, 1895), 180-193; Jane Addams and others, *Philanthropy and Social Progress: Seven Essays... Delivered Before the School of Applied Ethics at Plymouth, Mass....* (New York: T. Y. Crowell and Company, 1893), 39-50; James W. Linn, *Jane Addams* (New York: D. Appleton-Century Company, 1935), 178-189; Jacob A. Riis, *The Battle with the Slum* (New York: The Macmillan Company, 1902), 396-410; and Elsa Denison, *Helping School Children; Suggestions for Efficient Cooperation with the Public Schools* (New York: Harper and Brothers, 1912), 15-16. Other sources for the period after

established an industrial school in New York City's vice district in 1853, and a second one two years later in an Italian neighborhood. By the time of his death in 1893, the Society was conducting twenty-one such institutions in the national metropolis. Twelve of these occupied handsome and commodious buildings, constructed in each case by gifts of philanthropic New Yorkers, chiefly women. Although they taught all the primary work required of schools under public subsidy, they laid most stress upon classes in mechanical and domestic arts. Nine of them ran separate sessions at night, not only for adults but also for older youngsters who worked by day as newsboys or in factories, sweatshops, and stores.<sup>8</sup>

Armstrong, the son of Presbyterian missionaries to Hawaii, had served as commander of a Negro regiment in the Union Army while still in his twenties. In 1866 General O. O. Howard put him in charge of the freedmen concentrated at Hampton, Virginia, and of the school which the American Missionary Association had established there early in the war. Remembering the industrial schools his father had conducted for native Hawaiians, Armstrong determined to make training through productive work in the agricultural, industrial, and domestic arts the central feature of Hampton Institute. The General Assembly of Virginia designated it the State Agricultural College for Negroes in 1870. For twenty-five years, Armstrong taught his students that their chief aim should be not just making a living, but making a life. Their mission, he said, was to regenerate Negro society. Character, moral and Christian, was the first requirement, and that could be forged only in honest, productive, and co-operative toil.<sup>9</sup>

By 1880, numerous factors had helped to set the stage for a broad extension of vocational and civic training. Educators who studied in Germany brought back an enthusiasm for the pedagogical theories of Friedrich Froebel, Johann Pestalozzi, and Johann Herbart. Each of these in his own way had stressed activity, interest, and manual work. Each made the development of ethical and civic responsibility the central objective of childhood learning.<sup>10</sup> At the Philadelphia Exposition of 1876, which marked the national centennial, the products and the methods of Russian and Scandinavian trade schools impressed not only educators but American manufacturers and businessmen as

1900 are cited in Morris I. Berger, "The Settlement, the Immigrant and the Public School: A Study of the Influence of the Settlement Movement upon Public Education" (unpublished Ph. D. dissertation, Columbia University, 1956), 93-97, 127-154.

<sup>8</sup> *The Children's Aid Society of New York. Its History, Plan, and Results...* (New York: Children's Aid Society, 1893), 20-30; Riis, *Children of the Poor*, 187-211, 294; and comments in Robert H. Bremner, *From the Depths. The Discovery of Poverty in the United States* (New York: New York University Press, 1956), 38-39, 212-213.

<sup>9</sup> Dabney, I, 446-448, 457-469.

<sup>10</sup> See Ned A. Dearborn, *The Oswego Movement in American Education* ("Teachers College, Columbia University, Contributions to Education," No. 183; New York: Teachers College, Columbia University, 1925); Charles DeGarmo, *Herbart and the Herbartians* (New York: C. Scribner's Sons, 1895).

well.<sup>11</sup> Of similar consequence was the long depression of 1873-1877, highlighted by the bloody railroad strike. It produced widespread anxiety over the labor question among clergymen, editors, and college professors, the groups who most readily turn to schooling as a solution to social problems.<sup>12</sup> The census of 1880, moreover, yielded statistics on illiteracy which confirmed suspicions that mass immigration was making the educational crisis as serious in Northern cities as in the rural regions of the South. The result was a powerful renewal of the drive for federal aid to common schools, in which concern for citizenship and vocational training soon became paramount.<sup>13</sup>

Another factor was the rise of a self-conscious middle class among Irish Catholics and German Jews, claiming the right to direct the task of elevating and Americanizing non-Protestant newcomers. Catholic laymen, under the leadership of the Society of St. Vincent de Paul and Bishop Levi Silliman Ives, established the first of the Protectory's industrial schools in New York City and Chicago as early as 1863, partly to provide a defense against proselyting by the Children's Aid Society. The full shock of the influx from Russia and Eastern Europe struck the Jewish group in 1883.<sup>14</sup> Finally, the pioneer work of prison reformers focused attention upon the possibility that industrial education of the "dangerous classes" would help curb delinquency. Thomas K. Beecher, a Congregationalist minister from Brooklyn, New York, created something of a sensation in 1887 by reporting and defending his advice to two unemployed young men "to commit grand larceny, in order that they might be placed under the restraining and educational influences of the Elmira reformatory." The state, Beecher said, "had made no other provision equally adequate for the education of young men."<sup>15</sup>

<sup>11</sup> Dabney, II, 167-170; J. D. Runkle, "The Russian System of Mechanical Art Education, As Applied at the Massachusetts Institute of Technology," NEA, *Proceedings* (1877), 231-237; Jessup, 34-35.

<sup>12</sup> Henry F. May, *Protestant Churches and Industrial America* (New York: Harper and Brothers, 1949), 91-111; Mann, 126-135; the inaugural address of President M. A. Newell, NEA, *Proceedings* (1877), 7-10, 13.

<sup>13</sup> J. C. Hartzell (ed.), *Christian Educators in Council. Sixty Addresses by American Educators; with Historical Notes upon the National Education Assembly...* (New York: Phillips & Hunt, 1884), 18-21, 35-38, 47-50, 53, 232-235, 245-247; Gordon C. Lee, *The Struggle for Federal Aid: First Phase... 1870-1890* (New York: Columbia University Press, 1949), 98-129; Jessie Pearl Rice, J. L. M. Curry, *Southerner, Statesman, and Educator* (New York: King's Crown Press, 1949), 91-92, 94-95.

<sup>14</sup> John O'Grady, *Catholic Charities in the United States: History and Problems* (Washington: National Conference of Catholic Charities, 1931), 106ff., 111-126, 235, 239-243, 248; Boris D. Bogen, *Jewish Philanthropy; an Exposition of Principles and Methods of Jewish Social Service in the United States* (New York: The Macmillan Company, 1917), 89-90; Barbara M. Solomon, *Pioneers in Service: The History of the Associated Jewish Philanthropies of Boston* (Boston, 1956), 22, 30-40; Mann, 54-72.

<sup>15</sup> *International Record of Charities and Correction*, II (May, 1887), 44; and the same (February, 1888), 189. See also: NCCC, *Proceedings* (1884), 358-359; William T. Harris, "Compulsory Education in Relation to Crime and Social Morals," the same (1885), 228-240; R. Heber Newton, "The Bearing of the Kindergarten on the Prevention of Crime," the same (1886), 53-58; and Josephine Shaw Lowell's article in Frances A. Goodale (ed.), *The Literature of Philanthropy* (New York: Harper and Brothers, 1893), 12-15.

In the South, the John F. Slater Fund for Negro education, established by a Connecticut manufacturer in 1882, played a key role in the extension of industrial schooling. The leading trustees of this fund were ex-President Rutherford B. Hayes, Daniel C. Gilman, head of Johns Hopkins University, and William E. Dodge, a New York City merchant and president of the National Temperance Society. The trustees announced in 1883 a policy of specially favoring "Christian" normal schools for Negroes which offered instruction in manual and household arts. They appointed as field agent Atticus G. Haygood, a Southern Methodist minister and president of Emory College, Atlanta. Haygood immediately reversed his previous stand against "utilitarianism" in education and became the South's strongest advocate of industrial training. Simultaneously, the numerous institutions which Northern evangelical denominations had established since the Civil War adopted the new approach in their normal departments. J. L. M. Curry, general agent of the Peabody Education Fund, was quickly won over to the cause. Booker T. Washington, who left Hampton to establish a similar school at Tuskegee, Alabama, in 1881, soon demonstrated that Negro instructors could effectively train teachers of their own race. By the end of the decade, Southern educators generally were converted to the idea that industrial training was the key to the moral, economic, and civic progress of both Negroes and poorer whites.<sup>16</sup>

In Northern cities, meanwhile, an even broader development of the movement for civic and vocational instruction took place. After 1880, religious and charitable agencies greatly extended their own programs, and began to cultivate public opinion favoring its introduction in elementary schools.<sup>17</sup> The campaign drew vital support from magazines of charity and "social science" as well as from pioneer muckraking journals, like *Scribner's Magazine*.

<sup>16</sup> See A. D. Mayo, "The Work of Certain Northern Churches in the Education of the Freedman, 1861-1900," in United States Commissioner of Education, *Report . . . for the Year 1902* (2 vols.; Washington, D. C.: Government Printing Office, 1903), I, 298-300; J. L. M. Curry, "Citizenship and Education," *NEA, Proceedings* (1884), 4-16; Rice, 111, 159-163; John F. Slater Fund, *Proceedings* (1882), 20; the same (1883), 7, 13-15; Dabney, I, 462-468; Louis D. Rubin, Jr. (ed.), *Teach the Freeman: The Correspondence of Rutherford B. Hayes and the Slater Fund for Negro Education, 1881-1887* (2 vols.; Baton Rouge, La.: Louisiana State University Press, 1959), I, xvii-xxv, 50, 92, and II, 3-9, 202; and Atticus G. Haygood, *Pleas for Progress* (Nashville, Tenn.: the author, 1889), 118-137, 161-162. Contrast Haygood's earlier views in his *The Church and the Education of the People* (pamphlet, Nashville, Tenn.: the author, 1874), 35, and his *Our Brother in Black: His Freedom and His Future* (New York: Phillips & Hunt, 1881), 134, 186-187.

<sup>17</sup> See, for early examples, General Conference of Associated Charities of Boston, *Report of the Committee on Industrial Training . . . May 16th, 1881* (Boston: Conference of Associated Charities, 1881), 5-8; NEA, *Proceedings* (1882), 160-162; the account of Felix Adler's "Workingman's School and Free Kindergarten," in Isaac E. Clarke, *Art and Industry. Education in the Industrial and Fine Arts in the United States. Part II—Industrial and Manual Training in Public Schools* (Washington, D. C.: Government Printing Office, 1892), 414; Lewis R. Harley, *A History of the Public Education Association of Philadelphia . . .* (Philadelphia: Public Education Association, 1896), 9; Riis, *Children of the Poor*, 293-295; and Graham Taylor, *Pioneering on Social Frontiers* (Chicago: The University of Chicago Press, 1930), 41-46.

zine and *The Forum* in New York, and Benjamin O. Flower's *Arena* in Boston. None saw the social significance of the agitation more clearly than Jacob Riis. A volume of his essays from *Scribner's*, published in 1892 under the title *Children of the Poor*, was a companion piece to his more famous book, *How the Other Half Lives*. The shocking revelations of the latter work have obscured notice of the hopeful educational measures Riis chronicled in the former. He soon became a prominent advocate of kindergartens, manual training, and other progressive methods in public schools.<sup>18</sup>

By 1895, leaders of the various humanitarian agencies in Boston, Philadelphia, New York, Baltimore and many other cities had organized industrial education associations to promote the establishment of tax-supported manual-training high schools. By effectively combining appeals to altruism and self-interest, they persuaded "commercial clubs" or other groups of businessmen to provide the initial financing. These civic groups, bringing together university professors, clergymen, editors, and social workers, were archetypes of those which a decade later ushered in other progressive reforms of American municipal life.<sup>19</sup>

Especially interesting is the story of the institutions which members of the older Jewish communities established for the Americanization of their newcomers. In 1884, the United Hebrew Charities of New York City joined the Hebrew Free School Association in sponsoring a complete program of industrial training for the children of Russian immigrants. In 1889 these groups united with the Young Men's Hebrew Association and the Aguilar Free Library Society to establish the Educational Alliance, popularly known as the Hebrew Institute. By stages they constructed a fine building, containing space for a large kindergarten, late-afternoon industrial classes for children attending public schools, and language, bookkeeping, stenography, and civics classes for adults. Substantial help came from the \$2,400,000 Baron de Hirsch Fund, which a German railroad magnate established in 1891. He wished its trustees to provide Jewish immigrants and their children with instruction in

<sup>18</sup> Woods, *Poor in Great Cities*, like Riis, *Children of the Poor*, comprises essays originally published in *Scribner's*. On *The Arena*, see Benjamin O. Flower, *Progressive Men, Women, and Movements of the Past Twenty-Five Years* (Boston: The New Arena, 1914), 208-210. In *The Forum*, see Tom Davidson's two articles on "Manual Training in Public Schools," III (April, 1887), 111-121, and VI (December, 1888), 382-391; and articles by Minot J. Savage, William T. Harris, Lester Frank Ward and others in a series entitled "What Shall the Public Schools Teach?", IV (January and February, 1888), 460-471, 573-581, V (July and August, 1888), 574-583, 682-690, and VI (September, 1888), 92-100. Practically every issue of Frederick H. Wines's *International Record of Charities and Correction*, I-III (1886-1888), contains references to the theme. See, in the *Journal of Social Science*, XXX (October, 1892), 12-14, Myra B. Martin's comments on "Art Education in American Life;" and, the same, XXII (June, 1887), 31-32, for Carroll D. Wright's article, "Popular Instruction in Social Science."

<sup>19</sup> See Harley, 16, 18-19; Clarke, 265-305, 354-447, 684-689, containing extensive documentary material; and *International Record of Charities and Correction*, II (May, 1887), 44. Cf. general comments in Jessup, 36-38, 42; Zueblin, 146-147; and Charles Hirschfeld, *Baltimore, 1870-1890: Studies in Social History* (Baltimore: The Johns Hopkins Press, 1941), 116-122.

crafts, in the English language, "and in the duties and obligation of life and citizenship in the United States." The philanthropist had previously tried to improve the condition of the Jews in Russia, but, despairing of this, he turned instead to helping them adjust to a new life in America. The Fund supported similar activities in Boston, Philadelphia, Chicago and other cities.<sup>20</sup>

Dipping at almost any point into the mass of materials which the advocates of industrial education published will verify the suspicion that the Puritan gospel of work had found a new vehicle, one which combined old ideals with modern needs. Denunciations of the idleness and snobbery which a "merely literary" education encouraged, bore a curious evangelistic zeal.<sup>21</sup> Hence the exceedingly close identification in the middle-class mind of the movements for manual and for moral training. Both themes found continuous and interlocking expression right down until 1910. To explore them is to strip bare the bedrock of moralism which underlay the progressive movement.<sup>22</sup>

At no point, in fact, was industrial education divorced before 1900 from what can perhaps best be described by the term "pragmatic idealism."<sup>23</sup> The narrow and pedantic character of American public schooling, its advocates believed, must soon give way to one which would "bring back to the consciousness of our youth a sense of the dignity of labor, of whatever sort, and [of] the brotherhood and mutual dependence of men in all of their industrial relations."<sup>24</sup> Not only the Massachusetts Institute of Technology but three other great technical colleges established during the decades before 1900, the Pratt, Drexel and Armour Institutes, illustrate this gearing of ideals to practicality.<sup>25</sup>

It was a commonplace of the times, indeed, that the kindergartens and the

<sup>20</sup> See Bogen, 27-30, 227-231; Solomon, 22-25, 50-51; Mann, 54-72; Addams, 32; and Berger, 45-79. Contemporary accounts appear in Mary M. Cohen, "Hebrew Charities," *Journal of Social Science*, XIX, Part I (December, 1884), 168-176; Annie Nathan Meyer, "The Hebrew Institute," *Charities Review*, I (December, 1892), 92-94; and Isaac E. Clarke, *Art and Industry . . . Part III—Industrial and Technical Training in Voluntary Associations and Endowed Institutions* (Washington: Government Printing Office, 1897), 341-347.

<sup>21</sup> See Joseph Rhodes Buchanan, *The New Education: Moral, Industrial, Hygienic, Intellectual* (Boston: the author, 1882); the same author's "The Moral Influence of Manual Training," NEA, *Proceedings* (1883), 37-46; Felix Adler, "The Influence of Manual Training on Character," NCCC, *Proceedings* (1888), 272-280; Haygood, *Pleas for Progress*, 125-126.

<sup>22</sup> See "Publications in Morals," *Lend a Hand*, II (1887), 77-78; the series of articles already cited in *The Forum* on "What Shall the Public Schools Teach?", including additionally, V (June, 1888), 454-460, and VI (October, 1888), 204-211; and passages in practically every work cited in the foregoing pages.

<sup>23</sup> Calvin M. Woodward, "The Function of an American Manual Training School," NEA, *Proceedings* (1882), 140-142, 147, and his address, "Manual Training," the same (1883), 84-87.

<sup>24</sup> Samuel T. Dutton, "The Relation of Education to Vocation," *Journal of Social Science*, XXXIV (November, 1896), 54, 56, 59. See also, the same, XXIV, Part I (1888), 63; and Isabel Barrows (ed.), *Conference on Manual Training . . . Held in Boston, April 11, 1891* (Boston: Conference on Manual Training, 1891), 12-13, 17-21, 45-51, 117-120, containing addresses by Robert H. Richards, Charles W. Eliot, Felix Adler, Edmund J. James, and others.

<sup>25</sup> Documents pertaining to these institutions are reprinted at length in Clarke, *Art and Industry . . . III*, 448-451ff., 560-564, 567, 570ff., and 907-911ff.

graduate seminars and laboratories were but the lowest and the highest rungs of a new kind of educational ladder, whose steps young people mounted through "learning by doing." Each stage afforded a widening fulfillment of the practical, the moral, and the intellectual training which they needed for life in an industrial age. Laboratory and shop work, William James declared, would give us "citizens with an entirely different intellectual fibre." Andrew D. White, William R. Harper and Daniel C. Gilman directed the graduate faculties at Cornell, Chicago, and Johns Hopkins to cultivate the sciences useful in solving contemporary problems. At least one university founder, Leland Stanford, consciously molded his plans around an educational ideal stemming from the kindergarten and manual training movements. The universities hoped thus to break the hold of the classical tradition on American collegiate training and to set free the liberating forces of reform.<sup>26</sup>

### THE KINDERGARTEN AND THE CHILD-CENTERED SCHOOL

What saved the early vocational movement from prostrating the child to the interests of business or the demands of the state was its close association, in both theory and practice, with the kindergarten ideal of the child-centered school.<sup>27</sup>

Modern students who see in the public kindergarten a luxury which only middle-class suburbs can afford, will be surprised to discover that the early spread of the idea owed much to the humanitarian work which earnest women did among the poor. Susan E. Blow personally subsidized the first units of the public system which William T. Harris allowed her to establish in St. Louis in 1873. Mrs. Quincy A. Shaw opened two kindergartens for workingmen's children in Cambridge, Massachusetts, in 1877, and within two years was supporting entirely more than a score of them in nearby Boston. In San Francisco, two women's groups, the Public Kindergarten Society, owing much to Felix Adler's inspiration, and Mrs. Sarah B. Cooper's Bible class carried on comparable work.

<sup>26</sup> See Clarke, *Art and Industry . . . II*, 44-45; Jessup, 47; Charles W. Eliot, "The Function of Education in Democracy," *The Outlook*, LVII (November 6, 1897), 570-572, a popularization of the point he made more clearly in an address of July 11, 1894, printed in *Educational Reform, Essays and Addresses* (New York: The Century Company, 1898), 316-320; David Starr Jordan, "The Educational Ideas of Leland Stanford," *The Educational Review*, VI (September, 1893), 136-138, 142; Barrows, 13, 119; Daniel Coit Gilman, "A Plea for the Training of the Hand," in Industrial Education Association of New York, *Monographs*, I (New York: The Industrial Education Association, 1888), 1-15; and Elmer E. Brown, "Fifty Years of American Education," NEA, *Proceedings* (1906), 327-341. The quotation is from William James, *Talks to Teachers on Psychology; and to Students on Some of Life's Ideals* (New York: Henry Holt and Company, 1900), 35.

<sup>27</sup> For the relationship between the two, see Riis, *Children of the Poor*, 174-215; Nicholas Murray Butler, "Manual Training as an Element in Education," in Regents of the University of the State of New York, *One Hundred and Second Annual Report* (Albany, N. Y.: 1889), 20-22; Edmund J. James, "The Kindergarten and the Public School," in Barrows, 54-56, and the discussion, 66-73; and NEA, *Proceedings* (1883), xvii, 79-83.

Similarly, the Chicago Froebel Association originated in a school for indigent youngsters which Mrs. E. M. Blatchford established in 1879. Francis W. Parker incorporated the organization's training class for kindergarteners into the Cook County Normal School in 1883. Another group, the Chicago Free Kindergarten Association, supported by 1886 fourteen schools enrolling 1800 children, practically all from the poorest sections of the city. Miss Anna Hallowell organized the Philadelphia Sub-Primary School Society in 1881 in order to carry out one of the recommendations of a community-wide study of industrial education. By 1886, with the help of annual grants from the city's board of education, her group maintained classes for 1000 children, "mostly from the poorest and most ignorant classes, frequently from the most degraded and vicious."<sup>28</sup> From 1885 onward, ladies active in charity organizations and children's aid societies, city missions and institutional churches, mothers clubs and industrial schools, made the teaching of underprivileged tots one of their major concerns.<sup>29</sup>

Of special interest is the role of the "kitchen garden" movement in the beginnings of domestic science instruction. In 1876, Miss Emily Huntington came to New York from her native Connecticut to teach at the Wilson Mission Industrial School for Girls. Appalled by the wretched conditions in tenement families, she proposed to introduce pre-school children to scientific home-making through a carefully designed program of "playing house." Since a chief principle of kindergartening was to keep in close touch with mothers, she hoped for immediate as well as long range improvements in home life. In 1880, interested women organized an association to help Miss Huntington train kitchen-garden teachers to fill positions in missions and industrial schools all over the city.

The idea spread rapidly. Emily Huntington visited Hampton Institute and trained two faculty members who introduced the method in the normal course there. By 1884, kitchen-garden associations were functioning in Chicago, Cincinnati, Cleveland, Pittsburgh, Boston and other cities. In that year the New York women reorganized under the name Industrial Education Association, and set out to develop a more advanced program of instruction for girls in public elementary schools, as well as to promote manual training for boys.<sup>30</sup>

<sup>28</sup> MacKenzie, NCCC, *Proceedings* (1886), 48-53; Sarah B. Cooper, "The Kindergarten as a Child-Saving Work," the same (1882), 130-138, the same, 53-58; Harley, 9, 13-14; Mme. Kraus-Boelte, "The Kindergarten and the Mission of Women," NEA, *Proceedings* (1877), 207-216; the sketch of Susan E. Blow in the *Dictionary of American Biography* (hereinafter abbreviated as DAB), by Beatrice C. Gesell; and *The Pioneers of the Kindergarten in America* (New York: The Century Company, 1924), 21, 186-187, 271-275, and *passim*.

<sup>29</sup> See NCCC, *Proceedings* (1885), 452-457; the same (1889), 238; Kate Douglas Wiggin, "The Relation of the Kindergarten to Social Reform," the same (1888), 247-258; Children's Aid Society of New York City, *Forty-Fourth Annual Report* (1896), 8-9; and Angeline Brooks, "A Mission Kindergarten," *Lend a Hand*, II (1887), 415-419.

<sup>30</sup> Clarke, *Art and Industry . . . II*, 255-259, 263-265; Sarah B. Cooper, "The Relation of the

The immense popularity in America of the educational theories of Friedrich Froebel stemmed directly from these activities. Deeply religious but personally erratic, the young German pedagogue had fathered the kindergarten idea in the years after Napoleon's defeat at Waterloo. In harmony with the spirit of romantic idealism, then at its peak on the Continent, Froebel sought to free little children from the retarding effects of fear and drudgery, and to encourage their "natural" development through nature study, song, and creative play. He worked out the details of his system in a school which he conducted from 1837 to 1851. German liberals who fled the suppression of the revolution of 1848 brought these ideas to America, but their spread was slow until the social crisis of the 1880's broadened their appeal.

By 1885, hundreds of benevolent American women, whose piety Rousseau's works would have outraged, were deeply engaged in the study of Froebel's two books, *The Education of Man* and *Mother and Play Songs*. They scrutinized the stages of children's growth, discussed the emotional and spiritual role of mother-child play, and sought ways of cultivating character through group activity. They seemed to consider their mentor a thirteenth apostle. "The kindergarten is more than a fact," Josephine C. Locke, Francis W. Parker's instructor in kindergartening at Cook County Normal School, told the National Educational Association in 1890; "it is a heavenly influence; it is the embodiment of an eternal principle which is bound to work whether man will or not." Only Froebel among the educational reformers of the century, she said, truly echoed the "Christ-message" and the "Christ-ideal" that "the kingdom of God or good is within you." By making the child "at once the beginning, the center, and the end" of instruction, he had undermined the European idea that trade schools should be merely places to prepare for breadwinning, an idea which, she noted, "even good Pestalozzi admitted."<sup>81</sup>

Indeed Froebel's attitude toward childhood harmonized readily with the two quickening impulses stemming from pre-Civil War religion, transcendentalism and evangelical Arminianism. Both of these rejected Calvinism and emphasized the practical application of the law of love. The champions

"Kindergarten to Motherhood," NEA, *Proceedings* (1889), 467-473; Mrs. Eudora L. Hailmann, "The Principles and Methods of Educating Our Girls for Parenthood," the same (1890), 455-459; and Julia Richman, "Shall the Public Schools Train Home-Makers?" *The Outlook*, LIX (August 27, 1898), 1022-1025.

<sup>81</sup> Miss Locke's statement in NEA, *Proceedings* (1890), 67-69, 71, is exactly comparable in mood to Francis W. Parker's address, "The Child," the same (1889), 479-482. Cf. Amalie Hoffer, "The Social Settlement and the Kindergarten," the same (1896), 88; Brooks, *Lend A Hand*, II (1887), 415-419; Sarah B. Cooper, "The Kindergarten as a Character Builder," NCCC, *Proceedings* (1885), 222-228; Stella McCarty, "Charity and the Kindergarten," *Charities Review*, VII (January, 1898), 943-950. A somewhat more "secular" view of Froebel appeared later in Susan E. Blow, "The History of the Kindergarten in the United States," *The Outlook*, LV (April 3, 1897), 932-938, and in the same author's "The Kindergarten Ideal," the same, LVI (August 7, 1897), 890-894.

of progressive orthodoxy at Andover Theological Seminary joined them to social science after 1880 and produced social Christianity. A gospel which worked, thus breathed new life into the gospel of work. Enlightened so, the pulpit gave powerful support to both kindergartens and industrial schools, and fostered the dream of a better world.<sup>32</sup>

Idealists of the day, moreover, were generally too tough-minded to allow sentiment to blind them to what William T. Harris described as "the frightful labor and struggle of years, the iron will, the relentless self-sacrifice" necessary to real knowledge. "We have of late been hearing much of the philosophy of tenderness in education," William James complained in 1899. "'Interest' must be assiduously awakened in everything, difficulties must be smoothed away. Soft pedagogics have taken the place of the old steep and rocky path to learning." Nevertheless, like Harris, James adapted his stress upon work to Froebel's notion of creative play. To such men, the new education did not lower standards or weaken discipline. Rather, it gave them meaning and moral significance.<sup>33</sup>

To the kindergartener's "fond faith," wrote Harris in 1893, "we owe the educational reforms of modern times." The accuracy of his statement is evident from the record of Joseph Mayer Rice's muckraking investigation of American urban school systems in 1892. Walter Hines Page, new editor of *The Forum*, commissioned the study. What Rice found to praise, in an epoch-making series of articles, were the kindergartens, the manual training classes, and the child-centered spirit they had prompted in the schools of Minneapolis and St. Paul, Minnesota, of Indianapolis and La Porte, Indiana, and of the Cook County Normal which had helped to set their course.<sup>34</sup>

#### THE SOCIAL SETTLEMENT AND NEIGHBORHOOD REGENERATION

If the movement for industrial education highlighted society's stake in the school and the kindergarten made the child himself central, the social settle-

<sup>32</sup> See my volume, *Revivalism and Social Reform in Mid-Nineteenth-Century America* (New York: The Abingdon Press, 1957), 140-162; Charles Howard Hopkins, *The Rise of the Social Gospel in American Protestantism, 1865-1915* (New Haven, Conn.: Yale University Press, 1940), 24-49; and Daniel Aaron, *Men of Good Hope. A Story of American Progressives* (New York: Oxford University Press, 1951), xiii-xiv, 3-20. Cf. Washington Gladden, *Ruling Ideas of the Present Age* (Boston: Houghton, Mifflin, and Company, 1895), 296; and Josiah Strong, *Religious Movements for Social Betterment* (New York: The Baker and Taylor Company, 1900), 13, 16-17, 22, 34, and *passim*.

<sup>33</sup> William T. Harris, Review of *Froebel and Education by Self-Activity*, by Herbert C. Bowen, *Educational Review*, VI (1893), 83-87; James, 54, 198ff.; Francis W. Parker, "An Account of the Work of the Cook County and Chicago Normal School from 1883 to 1899," in U. S. Commissioner of Education, *Report . . . 1902*, I, 259-261; the same, 275.

<sup>34</sup> Harris, *Educational Review*, VI (1893), 85; Joseph Mayer Rice, "The Public Schools of St. Louis and Indianapolis," *The Forum*, XIV (December, 1892), 434-435, 438-439; succeeding articles in the same series, XV (April and May, 1893), 212-215, 365-367, 370-375; "Oscar Carlton McCulloch," *Charities Review*, I (January, 1892), 97-102; and references to W. N. Hailmann's promotion of kindergartens in LaPorte and other cities, NEA, *Proceedings* (1906), 696.

ment houses and institutional churches synthesized the two concerns in a program for democratic social reform. Professor Dewey's admirable talks to parents, published in 1899 under the title *The School and Society*, brought into clear focus this third major goal of the progressive movement in education: the regeneration of community and national life through the public school.<sup>85</sup> It was the product, however, not of instinctive experimentation, as he suggested, but of the conscious planning of settlement house pioneers.

A regiment of idealistic and deeply religious young men and women followed Jane Addams, Robert F. Woods and Lillian Wald into the hundred-odd settlement houses planted in city slums during the 1890's. Mostly from upper middle-class families, they rejected the analytic coldness of both Marxist socialism and "scientific" charity. They determined to melt the ice of social indifference by the warmth of sustained, personal contact with the impoverished masses. They were, as Robert H. Bremner points out, steeped in the optimism native to the American character. Unlike an earlier generation at Brook Farm and a later one at Greenwich Village, however, these young people sought no escape from social responsibility. Nor were they in rebellion against traditional religious and political ideals. They rather thought of themselves as fulfilling them, as giving them a new and more hopeful life.<sup>86</sup>

A brief perusal of the successive issues of the *Bibliography of College, Social, University, and Church Settlements*, first issued in 1895, makes it plain that the heart of their program was education. Virtually all the houses established kindergartens, mothers groups, and boys and girls clubs in the first months of their existence. Most of them offered both day and night classes in manual and household arts for older children, and scheduled informal lectures and discussions for adults as well. All were preoccupied with helping new immigrants prepare for citizenship in a democracy. Jane Addams's Hull House established the first public playground in Chicago. Lillian Wald's "Nurse's Settlement" in New York breathed new life into the district nurse program. Robert A. Woods' associates at Andover House, Boston, specialized in social surveys designed to inform the public about the need for reform.<sup>87</sup>

<sup>85</sup> John Dewey, *The School and Society; Being Three Lectures* (Chicago: The University of Chicago Press, 1899), 26-27, 48, 51. Cf. Eliot, *The Outlook*, LVII (November 6, 1897), 570-575; Parker, in U. S. Commissioner of Education, *Report . . . 1902*, 248-249; and Albion W. Small, "The Demands of Sociology upon Pedagogy," *The American Journal of Sociology*, II (May, 1897), 840-847.

<sup>86</sup> Bremner, 61; Edward T. Devine, *When Social Work Was Young: Personal Recollections . . .* (New York: The Macmillan Company, 1939), 4-5, 7-13, 41; Robert L. Duffus, *Lillian Wald, Neighbor and Crusader* (New York: The Macmillan Company, 1938), 10, 16-34; Linn, 42-51, 77-81, 84-86; Taylor, 277-291; Woods, 177-182; and Addams, 128-131.

<sup>87</sup> See M. K. Jones, *Bibliography of College, Social, and University Settlements* (pamphlet; Cambridge, Mass: 1895), 13-14, and *passim*; John P. Gavit, *Bibliography of College, Social, and University Settlements* (Cambridge, Mass: 1897), 14, 17, 21, 40; and Caroline W. Montgomery, *Bibliography of College, Social, University, and Church Settlements* (Cambridge, Mass: 1905), *passim*. Cf. Goodale, 25, 36, 39-48, 60; Addams, 39-50; and, on boys club work, essays by Jacob Riis and Evert J. Wendell in Woods, 118-120, 151-176. See also Bremner, 63-64.

The settlement workers borrowed all of these activities from either the educational movements described earlier or the city missions which evangelical Protestants had supported since pre-Civil War days. What was new was their intense awareness that family and neighborhood disorganization were potentially more destructive than any of the redeeming influences which public or charitable schools could bring to bear upon individuals.

They set out, therefore, to plant and nurture through social education new conceptions of family and community life, adapted to the stubborn soil and harsh climate of an urban and industrial environment. The settlement house itself, with its parlor, books, and neighborly welcome, served as an extension to every nearby tenement home, as well as a meeting place for the labor unions and immigrant clubs through which the underprivileged tried to help themselves.<sup>38</sup> By their numerous contacts with the people, the resident workers learned at first hand the consequences of dangerous and unsanitary housing, organized crime, civic corruption, the saloon, child labor and the exploitation of women in the sweatshop. They supported and in some cases initiated the crusades against these evils. As the magnitude of the task of restoring health to both individuals and neighborhoods sank in upon them, however, they began to look more and more for help from the public school. And so the conception dawned, not only among settlement residents but among journalists such as Jacob Riis, that the school must become the social center for the community. It must help both old and young to prepare for citizenship, to learn the arts of homemaking, and to train for a useful vocation. At the same time it must unite men and women from all classes in a war on every form of injustice, squalor, and vice which threatened the purity and dignity of personal life. The institutional churches which sprang up during the same decade carried on identical functions and adopted similar goals.<sup>39</sup>

These lessons were not lost upon persons engaged in what they believed was the educational regeneration of the South. Booker T. Washington made Tuskegee Institute the center of a community of faith and practical knowledge which set an example for many others. At Calhoun, Alabama, the "Colored School and Settlement," situated amidst a population of 30,000 plantation Negroes, sponsored a full round of farmers' conferences and

<sup>38</sup> Taylor, 290-292; Hoffer, in NEA, *Proceedings* (1896), 514; Linn, 178-182; Jane Addams, *Democracy and Social Ethics* (New York: The Macmillan Company, 1902), 181-188.

<sup>39</sup> Berger, 1-3, 80ff., 127-140, develops this thesis. For corroboration, see also Riis, *Battle with the Slum*, 385-398; Denison, 15-16; and Woods, 59, 78-81, 74.

On the institutional churches, see Strong, 45-46, 79-82, and *passim*; Montgomery, 3; Florence E. Winslow, "The Settlement Work of Grace Church," *Charities Review*, VIII (March, 1898), 418-423; John R. Commons, *Social Reform and the Church* (New York: Thomas Y. Crowell Company, 1894); Robert A. Woods, *The City Wilderness, a Settlement Study...* (Boston: Houghton, Mifflin and Company, 1898), 208-214; *Social Science*, I (April, 1900), 11-15; and, generally, Aaron I. Abell, *The Urban Impact on American Protestantism, 1865-1900* ("Harvard Historical Studies," vol. LIV; Cambridge, Mass.: Harvard University Press, 1943), chapters 6 and 7.

agricultural fairs, mothers' meeting, teachers' institutes, and medical missions, in addition to its regular industrial classes. A score of religious organizations launched educational settlements among the mountain and mill-village whites of the South. Perhaps the most famous of these was the Berry Schools and College in Floyd County, Georgia, founded in 1901 by Miss Martha Berry, "the Sunday School lady of Possum Trot." Walter Hines Page had just such ventures in mind when he penned his famous lecture on "The School That Built A Town."<sup>40</sup>

No single incident better illustrates the interweaving of these various strands of the impulse to educational reform than the founding of Teachers College, Columbia University. It evolved out of Miss Emily Huntington's Industrial Education Association of New York, described earlier.<sup>41</sup> By 1887, the demand for teachers from churches, missions, and settlement houses was so great that the association determined to employ an "expert educator" to organize a normal college for training kindergarteners and instructors of manual and household arts. The man they chose was Nicholas Murray Butler. The directors named themselves a board of trustees for the "New York College for the Training of Teachers," and merged their publishing and promotional activities in the new institution.<sup>42</sup>

Butler set out to prepare a new kind of teacher for the public schools. He required everyone to take large doses of manual and domestic arts, along with nature study and a year's course in kindergartening, all in the belief that Froebel's philosophy must illumine the entire education of children. In 1893, he arranged to affiliate the institution with Columbia University. Already a key leader of the educational awakening, Butler's editorship of *The Educational Review* and his association with the progressive forces then circulating around Columbia soon placed him in the front rank of reformers among New York City's intellectual elite. He added the capstone to the Teacher's College system in 1902, when Mr. and Mrs. James Speyer gave \$100,000 to erect a school for practice teaching which combined the equipment and functions of a free school with those of a social settlement.<sup>43</sup>

<sup>40</sup> See "The Settlement Idea in the Cotton Belt," *The Outlook*, LXX (April 12, 1902), 92; Montgomery, 17-18, 23, 39-40; Dabney, II, 170-176; Strong, 90-104; and Walter Hines Page, *The Rebuilding of Old Commonwealths, Being Essays Towards the Training of the Forgotten Man in the Southern States* (New York: Doubleday, Page & Company, 1901), 102, 124-126.

<sup>41</sup> See Industrial Education Association of New York City, *First Annual Report* (1885), 3-6, 7, 9-11, 14; Louisa J. Kirkwood, "Methods of Industrial Training for Girls," NCCC, *Proceedings* (1885), 219-222; and, the same, 180.

<sup>42</sup> Industrial Education Association, *Third Annual Report . . . with Prospectus of the Proposed Training College . . .* (New York: The Association, 1887), 5-12; the same, *Mono-graphs*, I (1886), 16-24, 179-205; and, for Miss Grace H. Dodge's contemporaneous work with "working girls clubs" in New York, Eleanor Flexner, *Century of Struggle; the Woman's Rights Movement in the United States* (Cambridge, Massachusetts: Belknap Press of The Harvard University Press, 1959), 205-206.

<sup>43</sup> See New York College for the Training of Teachers, *Circular of Information* (1889), 1-3, 8-11, 20; Columbia University, Teachers College, *Circular of Information*, 1893-94 (New York: Columbia University, 1894), 7; *Teachers College Record*, III (November, 1902), 4-11, 21-28, 32-37, and V (May, 1904), 44-56.

The progressivism of Teachers College, clearly, was not John Dewey's creation; he did not arrive there until 1904. Nor was it, indeed, Butler's. It was born of the strange and mystic marriage of "science" and faith, of the revolutionary hope of making old values work amidst a harsh new industrial environment, and of the simple compassion which sent pious women to minister to the poor.

#### PRAGMATIC IDEALISM AND PROGRESSIVE EDUCATIONAL THEORY

Against this background of events we may now inquire into the nature of the new educational philosophies which the progressive movement spawned. What role did popular religious notions play? How did the transcendentalism inherited from Emerson illuminate a practical educational ideal? Was social Christianity as important a vehicle as the new psychology in establishing the conviction of the interdependence of body and mind and of individuals and society? Precisely how did educators harmonize the doctrine of progress through Christian reform with Darwinian ideas of social evolution?

The two volumes which first articulated a philosophy for progressive schooling, Joseph R. Buchanan's *The New Education*, published in 1882, and Francis W. Parker's *Talks on Teaching*, which appeared the following year, illustrate well the religious mood in which the new synthesis was taking place.

Buchanan denounced the rote memorization of traditional wisdom and called instead for training the whole child for the practical requirements of real life. He believed that the primary objectives of the schools should be to improve the pupil's physical health and knowledge of the laws of hygiene; to train him in the manual arts necessary to earn a living; to cultivate his moral and religious growth, "in harmony with the Divine nature"; and, finally, to focus his literary education upon the development of powers of "original thought and invention" which would "point the way to a new social condition of intelligence, prosperity and happiness."<sup>44</sup> Only so, Buchanan declared, could the schools counteract the social degeneracy stemming from "the organization of society and all its institutions upon a basis of pure and intense selfishness instead of the principles of Christianity taught by Jesus."<sup>45</sup>

The methods he recommended were similarly "progressive." Taking cues from Emerson and Mark Hopkins, as well as Froebel, he urged teachers to abandon tyranny in the classroom in favor of the only creative energy the universe knows, love. Their first duty was to make their pupils happy. Teachers must be wary of monotony and fatigue, and rely more heavily upon

<sup>44</sup> Buchanan, 5-13; the same author, "Full-Orbed Education," NEA, *Proceedings* (1875), 41-58; the DAB sketch, by Ernest S. Bates.

<sup>45</sup> Buchanan, 308, 310, 320, 338. Cf., the same, 296-304; Stewart, 257-267; Flower, 175-182, 184-186, 208-214.

visual and oral instruction than upon reading. They should encourage harmonious relationships through group singing and all forms of physical activity, including walking, marching, dancing and manual work. Most of all, they must cultivate the religious spirit "by emotional songs, and by familiar expositions of our relations to the divine and eternal."<sup>46</sup>

In the same year that Buchanan's book appeared, Francis W. Parker, whom John Dewey called the founder of progressive education, delivered at "Martha's Vineyard Summer Institute" a series of lectures to teachers which covered much the same ground. Parker had recently won national fame by introducing handwork and banishing harsh and competitive discipline in the Quincy, Massachusetts, school system.

Acknowledging his debt to Comenius, Pestalozzi, and Froebel, but betraying without acknowledgement his deeper debt to transcendentalism and progressive theology, Parker insisted that the "true motive" of all education was the "harmonious development of the human being, body, mind, and soul." The teacher's first requirement was to "*know the child, and its nature.*" Only by "the exact adaptation of the subject . . . to the learning mind" could he make the student's experience one of "essential happiness." Such enjoyment was vital to real moral growth. "When the mind is in the full tide of healthy moral action," Parker declared, "when it loves what it does, and does what it loves," its responsiveness to ethical stimulation is immeasurable. Hence the importance of manual training in common schools. Parker called it "the foundation of clear thinking, sound imagination, and good health." "Real work is always interesting, like real play," he said; "all school work should be real work. We learn to do by doing. . . ."<sup>47</sup>

In 1883 Parker accepted an invitation to become head of the Cook County Normal School in Chicago. There, in close association with student teachers, faculty members, and children in the demonstration school, he worked out his ideas in full detail.<sup>48</sup> He instituted a kindergarten and manual and household arts classes at once, partly with the help of funds donated by the Commercial Club of Chicago. Normal students spent the entire afternoon of every day in practice instruction in the demonstration school, in the belief that they, like the children, must learn by doing. A regular parents' meeting kept families abreast of activities in the classroom. For years the faculty gathered each Monday evening in Parker's home, and reported in minute detail the child-centered lesson plans with which they were experimenting. Settled back in a great cushioned chair, with closed eyes, Parker reviewed their outlines again and again, always asking toward the end, "Are you headed right?"

<sup>46</sup> Buchanan, 52-53.

<sup>47</sup> Francis W. Parker, *Notes of Talks on Teaching . . . at the Martha's Vineyard Summer Institute . . .* (4th ed.; New York: E. L. Kellogg & Company, 1883), 21-22, 170-171, 179-181.

<sup>48</sup> See the autobiographical sketch in Parker, *Notes*, ii-xix; and Ida C. Heffron, *Francis Wayland Parker; an Interpretative Biography* (Los Angeles: I. Deach, Jr., 1934), 26-27.

"Is it quality or quantity that you are after?" "Are you trying to cover ground or to develop character?" "What have you to think about except the present needs of the growing child?"<sup>49</sup>

In 1894, Parker published a revision of his lectures at Martha's Vineyard which displayed both the results and the religious idealism which underlay the experimentation at Chicago. The book refers not to Darwin but to Jesus as the source of faith and love which made the child pre-eminent. Its central hypothesis declared "that the human being was created and designed for the exercise of the highest moral power; that in each individual there are germs of the divine; and that all education is the outworking of this design of God." The passage on vocational education climaxes with Parker's statement that high motives are the fruit of right action; "he that doeth righteousness," he said, quoting the New Testament, "is righteous." Similarly, Parker saw history as the story of liberty; properly taught, "it joins the individual to the whole race, past and present, with bonds of sympathy and love." The study of nature was the essential means of cultivating "an intelligent and all-controlling love for the Creator." So with applied science, particularly those branches concerned with making the home better and improving health and sanitation. These, he said, inspired motives in students "as broad as humanity, as deep as the ocean of truth, as high as the throne of God." His reconciliation of child-centered and culture-directed education was also in Christian terms. "Fused and blended by mutual action and mutual love," the common school would become an arena where children might practice the essential lessons of democracy.<sup>50</sup>

The intense idealism of these early statements helps explain why the pioneers of the social gospel became important agents of the progress of the new educational philosophy. In an address on "The Needs of the City," delivered before a Boston conference of the Evangelical Alliance in December, 1889, Richard T. Ely called for "a profound revival of religion," for a renaissance of faith in government as a "God-given agency" of humane progress, and for the reform of public education. Placing the free kindergarten under the tax-supported school system was a first essential, he declared. Next in point of importance was industrial training, especially for girls, for whom tenement flats furnished scant opportunity to learn the arts of home-making. Preparation for life, Ely said, must come from the public school; the children of poorer families could find it nowhere else. He also urged city officials to establish free public libraries and reading rooms in working-class

<sup>49</sup> Wilbur S. Jackman, "Francis Wayland Parker," in U. S. Commissioner of Education, *Report . . . 1902*, I, 234, and, for the quotation, 235-236; and Parker's own statement, the same, 254, 255, and *passim*.

<sup>50</sup> Francis W. Parker, *Talks on Pedagogics. An Outline of the Theory of Concentration* (New York: E. L. Kellogg & Company, 1894), 258, 342-348, 372; Heffron, 68-70; and Bishop John L. Spalding's address in U. S. Commissioner of Education, *Report . . . 1902*, I, 277.

neighborhoods, and to open schoolhouses in the evenings for use by "clubs, debating societies, and all bodies of men who would give guarantee of proper behaviour." Among other benefits, making the school a social center would "help to counteract the baleful influences of the saloon."<sup>51</sup>

Lyman Abbott, Henry Ward Beecher's successor at Plymouth Church, Brooklyn, and Washington Gladden, crusading friend of the workingmen and pastor of the First Congregational Church in Columbus, Ohio, shared such views fully. They elaborated their own moral appeals to work and civic duty in progressive schools, and praised the substitution of mutual aid for competition as a step fitting youngsters "to take their place in a Christianized society."<sup>52</sup> The same is true of the educational philosophy of Jane Addams. The settlement movement, she declared in 1892, had grown from the desire of idealistic young people to make the entire social organism democratic, "to share the race life," and to show "the spirit of Christ toward the poor." They accepted fully Tolstoi's dictum that "love is the creative force of the Universe, the principle which binds men together." In this spirit, her later book, entitled *Democracy and Social Ethics*, made the ideal of vocation central in education. She looked at the machine not in economic but in spiritual terms, and exalted manual labor as a moral as well as a social ideal.<sup>53</sup>

Such an explicitly religious rationale could not have survived had its proponents been less pragmatic in their methods, or less open to the new currents of scientific thought. The social gospel preachers were for the most part theistic evolutionists. For two decades after 1890, in fact, idealists generally regarded reform Darwinism as simply a gloss on progressive theology, a validation of concepts of brotherhood, mutual aid, and human progress which they attributed to the influence of divine love. "Christian altruism," Washington Gladden said in 1895, "is scientifically verified."<sup>54</sup>

<sup>51</sup> See Richard T. Ely, "The Needs of the City," in *Evangelical Alliance, National Needs and Remedies. The Discussions of the General Christian Conference Held in Boston . . .* (New York: Baker & Taylor Company, 1890), 45-47, 51-53. Cf. William D. P. Bliss (ed.), *The Encyclopedia of Social Reform . . .* (2nd ed.; New York: Funk & Wagnalls Company, 1898), 536-539, 724-730, 774-775, and 1359-1360; and George C. Lorimer, *Christianity and the Social State* (Philadelphia: American Baptist Publication Society, 1899), 343, 371-372; and Sidney Fine, "Richard T. Ely, Forerunner of Progressivism, 1880-1901," *The Mississippi Valley Historical Review*, XXXVII (1950-51), 618.

<sup>52</sup> Washington Gladden, *Social Salvation* (Boston: Houghton, Mifflin Company, 1902), 189. See also, the same, 178, 186; the same author's *Social Facts and Forces: the Factory, the Labor Union, the Corporation, the Railway, the City, the Church* (New York: G. P. Putnam's Sons, 1897), 160, 204-205; Lyman Abbott, *The Rights of Man: A Study in Twentieth Century Problems* (Boston: Houghton, Mifflin Company, 1901), 161, 163-164, 317, 318, 326; Lee, *Philanthropy*, 97-105; and the issues of Josiah Strong's magazine, *Social Service*, describing the progressive schools he encouraged in factory towns, especially II (February, 1900), 12-13, and (September, 1900), 8-9, and IV (December, 1901), 220-225.

<sup>53</sup> Addams, *Philanthropy*, 2, 15-21; Addams, *Democracy and Social Ethics*, 187-191.

<sup>54</sup> Washington Gladden, *Ruling Ideas of the Present Age* (Boston: Houghton, Mifflin, and Company, 1895), 296. See also Commons, 9-10; Hopkins, 64-65, 123-134; Mann, 120-122; Bremner, 201-203; and Dorothea R. Muller, "The Social Philosophy of Josiah Strong: Social Christianity and American Progressivism," *Church History*, XXVIII (June, 1959), 184-190.

The evolutionary terminology arrived late, therefore, but in such good company that its acceptance was assured. Samuel T. Dutton, a school superintendent in New Haven who was one day to grace a chair at Teachers College, first restated Buchanan's thesis in terms at once Darwinian and Christian, in 1889. Either way, his article suggests, moral purpose was predominant in the kindergarten, manual training, physical education, and nature-study movements.<sup>55</sup> Six years later, the uncritical acceptance of Herbert Spencer's doctrine of "education according to nature" drew a sharp rejoinder in Nicholas Murray Butler's *Educational Review*. Nature, William Payne declared, operated by brute force, in total violation of ethical values and of the worth of the individual. "The joint work of Christianity, science and civilization, is to subdue Nature," Payne continued,

to make her man's servant rather than man's master. . . . There is to be a new earth, rescued from Nature and transformed by human art, and it is to be peopled by a race re-created by education and the Gospel; and throughout this secular [!] process the dominant force is to be the human intelligence and the human will.<sup>56</sup>

Butler himself embraced Darwinism only when it was restated so as to make the achievement of rationality and of a sense of community in man the beginning of a new stage of evolution, in which "spiritual" rather than physical elements were predominant. The task of the pedagogue, as the Teacher's College president saw it in 1895, was to acquaint children with the "spiritual inheritance" which they shared with all men on account of this higher evolution, a spiritual inheritance which included literature, art, political and social institutions, and, of course, religion.<sup>57</sup>

Nevertheless, as late as 1902, Ira W. Howerth began in Butler's journal a series of articles on Darwinism and education with the statement that "educational doctrines have been almost as impervious to the stream of evolutionary thought as the encrusted creeds of theology." Progressive schoolmen, he noted, still found their authority in the pre-Darwinian thinkers, Rousseau, Pestalozzi, Froebel, and Herbart. Like Butler, however, Howerth took his sociological principles from Lester Frank Ward, not Herbert Spencer. Three years later, Stephen S. Colvin found the concept of adjustment, which educational philosophy had borrowed from biology in the effort to "attain to the dignity of a science," to be "defective and insufficient" because it offered no design for a

<sup>55</sup> Samuel T. Dutton, "Education as a Cure for Crime," *The Journal of Social Science*, XXVI, Part I (1889), 56, 60-65.

<sup>56</sup> William H. Payne, "Education According to Nature," *The Educational Review*, X (September, 1895), 146; cf. pp. 138, 140, 144-145.

<sup>57</sup> Nicholas Murray Butler, *The Meaning of Education, and Other Essays and Addresses* (New York: The Macmillan Company, 1898), vii-ix, 4-5, 13-14, 17ff., 28-29, and 72-73. Cf. Hiram M. Stanley, "Evolutionary Psychology and Education," *The Educational Review* (June, 1896), 51.

better world. "The ideal," Colvin said, "is the true source of . . . all educational values."<sup>58</sup>

These considerations make intelligible the difficulties which G. Stanley Hall had in persuading the rank and file of "progressive" educators to accept his naturalistic approach to child-study and curriculum reform. It was not simply William T. Harris and the Hegelians who resisted him, but William James and Francis Parker. James warned student teachers in 1899 that their attitude toward children, being "concrete and ethical," was necessarily opposed to the abstract and analytical approach of the psychologist. "Psychology is a science, and teaching is an art," James said; "sciences never generate arts directly out of themselves." Parker told a gathering which honored him at Quincy shortly before his death that understanding youngsters scientifically was less important than displaying "a genuine hunger and thirst after righteousness . . . and an overmastering love for children and all mankind." If possessed of these qualities, he said, the teacher's spirit would pass over to his students "and inspire them to do the best work of which they are capable." It was precisely this aspect of Parker's contribution which John Dewey chose to praise at the memorial service for Parker held at the University of Chicago in 1902. "He insisted that the love and faith which are the tokens of the highest character everywhere," Dewey said, "find a peculiarly appropriate place in the contact of the learned and the mature with the little and the feeble."<sup>59</sup> Indeed, Hall himself by that time was questioning whether Dewey should organize an elementary curriculum upon the assumption that the child in his development passed "naturally" through the stages of human evolution.<sup>60</sup>

Other idealists besides Parker recognized that the young John Dewey might help teachers learn how to use pragmatic methods in achieving the moral goals of the new education. In 1897 W. N. Hailmann, superintendent of Indian schools for the federal government, proposed that the Department of Superintendence of the National Educational Association undertake a thorough investigation of the progress of child-centered instruction in elementary schools around the country. Hailmann had become known as "the apostle of Froebel" while serving as superintendent of schools in La Porte, Indiana. In the debate over the proposal, several of the Hegelians

<sup>58</sup> Ira W. Howerth, "Education and Evolution," *The Educational Review*, XXIII (January, 1902), 60, 61; the same author's "Education and Social Progress," the same (April, 1902), 358ff.; Stephen S. Colvin, "The Concept of Adjustment as Applied to Education," the same, XXIX (May, 1905), 510, 513. Cf. Eliot, *The Outlook*, LVII (November 6, 1897), 570-571; and George A. Coe, in *National Conference on Secondary Education and Its Problems* (Evanston, Ill.: Northwestern University, 1904), 155-158.

<sup>59</sup> See James, 7, 12-13; Parker's address, "The Quincy Method," and other statements in U. S. Commissioner of Education, *Annual Report . . . 1902*, I, 250, 261-262, 267. On child-study, contrast Francis W. Parker, "The Child," *NEA, Proceedings* (1889), 479-482, with statements and addresses by G. Stanley Hall, the same (1885), 504-511, the same (1891), 830-832, and the same (1893), 717-718.

<sup>60</sup> G. Stanley Hall, "Some Social Aspects of Education," *The Educational Review*, XXIII (May, 1902), 443.

argued that since Hailmann's ideas could be summarized in general propositions, progress would come faster by skipping the data-gathering step and establishing a commission simply to "state in clear and cognate language the general guiding principles to be followed in making the work of the school ethical." Hailmann replied with a forceful statement of the pragmatic principle that useful knowledge must come from close study of experience. When a committee was finally authorized to draw up a detailed plan for the investigation, Hailmann immediately moved that John Dewey be made its chairman.<sup>61</sup> Dewey's report, delivered the next year, failed of adoption, but it inspired the school survey movement of the following decade and, indeed, anticipated much of what he said in 1899 in *The School and Society*. The report began with a paragraph which reiterated the principles Hailmann had set forth the year before. "School instruction and administration," Dewey said,

must grow out of the pupil's experience; must remember that its object and goal are found, not in itself, but in enriching the child's life experience, and furthering his powers of self-expression and achievement; and that this development must be conceived as social —"the sympathetic co-ordination of individual purpose with that of others in common social endeavor, and in active mutual devotion to worthy universal ideals."<sup>62</sup>

#### CONCLUSIONS

The conclusions which this brief study suggests are perhaps less important than the questions which it raises. Most surprising to this researcher is the discovery that progressive educators regarded private, as distinct from sectarian, institutions as staunch allies. They thought them indispensable for experiments which political or other pressures made impossible in tax-supported schools. Moreover, they encouraged benevolent groups and individuals to subsidize the public purse when forward steps were taken. After industrial education had won general acceptance, for example, the Children's Aid Society inaugurated experimental classes for crippled and retarded youngsters, and demonstrated the necessity of cheap lunches and physical and health education in the public system of New York.<sup>63</sup> Francis Parker left Cook

<sup>61</sup> See N.E.A., *Proceedings* (1897), 195-197, 199-216, and, for the quotation, p. 215. Cf. W. N. Hailmann, "The Natural or Developing Element in Modern Methods of Elementary Culture," the same (1887), 80-86; comments by William T. Harris, the same, 87-91; and John Dewey, "Teaching Ethics in the High School," *Educational Review*, VI (November, 1893), 315-318, showing Dewey's debt to the social worker's version of pragmatic idealism.

<sup>62</sup> NEA, *Proceedings* (1898), 335-343.

<sup>63</sup> Robert A. Woods, "Expenditures in Educational Philanthropy," *The Educational Review*, XXV (May, 1903), 483-489; Public Education Association of the City of New York, *A Primer of Public School Progress* (New York: Public Education Association, 1914), "forward" and *passim*; Denison, 15-16, 19-20, 34-36, 44-47, 106; Jessup, 42, 55-60, and *passim*; Charles Loring Brace, "Day Schools for Crippled Children: an Experiment of the New York Children's Aid Society," *Charities Review*, X (April, 1900), 79-83; and Samuel T. Dutton, "The Correlation of Educational Forces," NEA, *Proceedings* (1897), 217ff.

County Normal in 1899 to assume charge of a privately-endowed institution on Chicago's North Side. Dewey's elementary school at the University of Chicago was supported chiefly by interested donors. As late as 1915, he and his daughter, Evelyn, found the practices they praised in *Schools of Tomorrow* more characteristic of private than of public ventures: Mrs. Johnson's school at Fairhope, Georgia, Professor J. L. Merriam's elementary classes at the University of Missouri, Caroline Pratt's play school at Greenwich Village, and so on.<sup>64</sup> Was, then, the later tendency to picture private schooling as a rival to public education, and charitable institutions as uniformly in violation of the principles of social democracy, a fulfillment or a perversion of progressivism? Did this tendency sometimes sacrifice the child's and the community's improvement to other purposes?

A second conclusion, which ought not to be surprising, is that pragmatism was born of events, rather than ideas. With this, indeed, Professor Dewey's view of how we learn is in full harmony. But what was the precise relationship of the idealism of the social and educational experiments which first nurtured the new philosophy to the rejection of all absolutes which came later? As displayed in the writings of Francis Parker, Nicholas Murray Butler, Jane Addams, William James, and, at first, Dewey himself, progressivism seems merely Puritanism spelled a new way. Did scientific pragmatism in fact survive the cutting of this umbilical cord because it carried in its genes a great deal of the temper of the old faith, even while abandoning its certainties?

Patent also is the fact that the educational awakening flourished chiefly in cities, through the initiative of voluntary associations of middle-class humanitarians. Did their crusades really contribute substantially, however, to the contemporaneous evolution of political progressivism? If so, precisely how and in what areas? Did educational reformers play vital or merely sustaining roles in the war upon municipal corruption? What did they contribute to the idea of the positive welfare state? To choose two minor examples, did their attack upon the saloon, as an enemy of both the child and the school, broaden the appeal of the prohibition crusade in a manner really indispensable to its success? Did their agitation for tax-supported instruction in hygiene, sanitation, and domestic science spark the campaign to curb through food, drug, and housing legislation the exploitation for profit of the people's health?

Certainly, a broad synthesis of thought and action emerged in the 1890's, combining popular religious feeling with new scientific and social philosophies. Social Christianity and reform Darwinism formed the coupling link. Its practical expression was a civic alliance which drew together schoolteachers, clergymen, social workers, reform politicians, scientists and university

<sup>64</sup> Heffron, 32-33; Dewey, *School and Society*, 113; John and Evelyn Dewey, *Schools of Tomorrow* (New York: E. P. Dutton and Company, 1915), 17, 41, 69ff., 110, 116, 124.

professors. First in education and then in other areas of life, this alliance forced a significant change in the direction American society was moving—toward social democracy and increased regard for individual worth. If this is so, was there no way of avoiding the fragmentation of the synthesis and the uncoupling of science and religion after 1915? Did the age of innocence have to end in a Fall so complete? The answer is important because the event turned out not only to the impoverishment of religion and much else in American cultural life, but to the inner decay of the new education as well. Shorn of altruism and personal commitment, many "progressive" teachers abandoned civic responsibility. An individualism sanctified not by Carnegie but by Freud made the child-centered school a middle-class plaything.<sup>65</sup> Then, prompted by wars both hot and cold, some educators reverted to a concept of vocationalism rejected sixty years before, which prostrated students' personalities to whatever national goals and social attitudes seemed appropriate.

<sup>65</sup> Lawrence A. Cremin, "John Dewey and the Progressive Education Movement," *The School Review*, XLVII (Summer, 1959), 165-169.

# Education and Social Unrest, 1873-1878

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## I

IN 1877 THE PRESIDENT of the National Education Association quoted the views of two Americans concerning the role of education in the disastrous strikes and riots of that critical year. One citizen, he said, complained that upheavals had occurred because the schools were ineffectual, while the other retorted, "It was the good sense of an immense majority of working people, created, fostered, and developed by public education, that saved us from the terrors of the French Commune."<sup>1</sup> Despite their conflicting interpretations both were agreed on one point: the schools were on trial. Study of such periods of crisis sometimes provides the historian with a measure of the rootedness and resilience of ideas and institutions, a clue to obscure transitions in historical development. In America there have been many times when social dislocations or rapid changes have aroused concern about the efficiency of educational institutions and the validity of articles of educational faith: the Revolutionary period, for instance, when theorists like Benjamin Rush sought to make "republican machines" through public instruction; the decade after the Civil War, when the North attempted to reconstruct the South, in part through education; World War I, when many distrusted the readiness of the nation to undertake a patriotic crusade and used the schools as a propaganda machine; the Depression of the 1930's, when some wished the schools to prevent revolution and others wanted them to shape a new social order; and most recently, the effects of McCarthyism and Sputnik on American ideals and practices in education.

Of late, historians have criticized that view of educational historiography which treats the school as a self-contained and self-determining institution and have pointed to the mutual impact of the schools on society and society

<sup>1</sup> The National Education Association, *Addresses and Journal of Proceedings* (Salem, Ohio, 1877), 6 ff.

on the school. One promising way of tracing this interdependence is the attempt to isolate major transitions in educational theory or practice and to interpret these changes in terms of a larger social context.<sup>2</sup> But another possible approach to the integration of general and educational history is to ask whether dislocations in society as a whole (or crises in important sectors of society) had important repercussions in education. In using this second method of posing questions the historian is not so sure as in the first that he will elucidate the pattern of change in educational agencies themselves, for he takes as his point of departure crises which may have played little or no part in shaping education. Yet in such a case a negative finding may be quite significant in itself, whether as an indication of the firmness of American commitment to certain educational patterns, as a measure of the seriousness of the dislocation itself, or as a gauge of the relative autonomy or resistance to change of educational institutions.

In this exploratory essay I shall adopt the second approach and examine developments in education during the span of years 1873-1878, a period of financial constriction and industrial conflict which reached its apex in the acute disturbances of 1877. In that year the U.S. Commissioner of Education warned in his annual report of "the enormities possible in our communities if the systematic vagrancy of the ignorant, vicious, and criminal classes should continue to increase," and urged that "Capital, therefore, should weigh the cost of the mob and the tramp against the cost of universal and sufficient education."<sup>3</sup> The dislocations attendant on the Panic had been numerous. With the collapse of Jay Cooke's firm had come the failure of many other financial concerns and widespread unemployment and retrenchment. Bread lines lengthened, vagrants grew in numbers and boldness, and observers noted an increase in radicalism among the urban unemployed, and sectional controversies about currency reform. But it was the succession of conflicts between labor and capital, culminating in the destructive and bloody strikes and riots in 1877, which most clearly focused the attention of the country on the depths of social dislocation during the decade of the 1870's. In these widespread outbreaks, mobs of men, out of work, hungry, and angry at what seemed to them gross economic injustice, looted and burned and killed, with little restraint. For reflective men of this era, as for Horace Mann, who had de-

<sup>2</sup> See, for example, the pamphlet by Paul H. Buck et al. which was published by the Fund for the Advancement of Education in 1957, *The Role of Education in American History*; Bernard Bailyn, *Education in the Forming of American Society: Needs and Opportunities for Study* (Chapel Hill, University of North Carolina Press, 1960), 1-15; Richard Hofstadter and Walter Metzger, *The Development of Academic Freedom in the United States* (N. Y., Columbia University Press, 1955), preface.

<sup>3</sup> U.S. Commissioner of Education, *Report for 1877* (Washington, 1878), viii; this essay will not include consideration of educational developments in the south during the crucial decade of the 1870's, for these are in some respects a separate chapter in the educational history of the period.

plored the riots in the 1830's, the railroad strikes seemed to be an ominous rending of the social fabric. Would the rapidly built armories in the cities really prevent a Commune in the United States?<sup>4</sup>

An earlier generation of common school crusaders had argued that public education would be a universal panacea, a cure for poverty, violence, idleness, and all kinds of social disease. Would the American people now repudiate this dream and become disillusioned with the high promises of the schoolmen at a time when social conditions belied optimistic predictions? Or would they work all the harder to fulfill their articles of educational faith? Would they, indeed, see their trials as a Providential reminder of their lapses and their responsibilities? So had the Secretary of the Massachusetts Board of Education seen an earlier panic when he claimed in 1858 that the "recent financial difficulties, which interrupted the business of the country, have been so ordered by Divine Providence as, in their results, to give increased opportunities for the enjoyment of the privileges of our common schools."<sup>5</sup> And what would be the effects of financial constriction on education? Would educators be forced to retrench, to forego reform in order to preserve gains made in the previous generation, or would the Panic and its aftermath help to give new impetus to innovation and improvement in the schools? Would the type of financial support (e.g. public or private) substantially affect the fate of the different types of schools? How would the particular stresses of the Depression influence the kinds of arguments for and against the schools that were advanced in the 1870's?

In seeking evidence to reply to such questions it is difficult to discern clear-cut causal relationships between large-scale social conditions and specific reactions in education. It is perhaps possible, in tracing educational developments on various levels, to point out some correlations between economic conditions or anxieties generated by the Depression, for example, and certain responses in education. Yet on the whole it is likely to be more useful to attempt a general description of the estate of the schools in the 1873-1878 span. To single out only those educational developments which the Depression most directly affected would prejudice the response to the original questions asked; educational agencies which did not apparently respond to changing conditions in society, or whose course of development seemed relatively autonomous, also need scrutiny. One important index to the educational situation in this period is the statistical data furnished by the U.S.

<sup>4</sup> Allan Nevins, *The Emergence of Modern America, 1865-78* (N. Y., The Macmillan Company, 1927), 290-305, 380-395; Terence V. Powderly, *Thirty Years of Labor, 1859-1889* (N. Y., Excelsior Publishing House, 1890), 209-221; Herbert Harris, *American Labor* (New Haven, Yale University Press, 1938), 228 ff.

<sup>5</sup> As quoted in Royce S. Pitkin, *Public School Support in the United States during Periods of Depression* (Brattleboro, Vt., Steven Daye Press, 1933), 31; for the earlier common school crusaders see Lawrence Cremin, *The American Common School: An Historic Conception* (N. Y., Columbia University Press, 1951).

Bureau of Education. Such information requires analysis and interpretation, for the attacks on the schools and the spirited defense of them also constitute an essential part of the record of the time. Lastly, it is important to investigate what qualitative changes occurred in different kinds of schools.

## II

In estimating the impact of the Panic on the schools in 1874, the U.S. Commissioner of Education stated that "Parents have withheld children from school; communities have voted smaller taxes for educational purposes; cities have begun to retrench by reducing the salaries of teachers . . .," but, he concluded, "a careful survey of the progress made throughout the whole country during the past year affords good reason for the belief that the citizens of the United States realize the necessity and value of their free schools and are determined to maintain them."<sup>6</sup> On the whole the statistical records corroborate his sanguine opinion. Over the twenty year span from 1870 to 1890 the percentage of the total population enrolled in the public schools (Table One) remained fairly constant, actually increasing somewhat during

TABLE ONE

Percentage of Population Enrolled in Public Schools, 1870-1890			
1870	17.8	1881	19.5
1871	19.1	1882	19.5
1872	19.3	1883	19.8
1873	19.3	1884	20.0
1874	19.8	1885	20.3
1875	20.1	1886	20.3
1876	19.8	1887	20.2
1877	19.4	1888	20.3
1878	19.9	1889	20.3
1879	19.5	1890	20.3
1880	19.7		

the middle of the Depression. A similar general pattern appears in the figures on the length of the school term (Table Two) although at the beginning of the

TABLE TWO

Length of School Term, 1870-1890			
1870	132.2 (days per year)	1881	130.1
1871	132.1	1882	131.2
1872	133.4	1883	129.8
1873	129.1	1884	129.1
1874	128.8	1885	130.7
1875	130.4	1886	130.4
1876	133.1	1887	131.3
1877	132.1	1888	132.3
1878	132.0	1889	133.7
1879	130.2	1890	134.3
1880	130.3		

<sup>6</sup> U.S. Commissioner of Education, *Report for 1874* (Washington, 1875), v.

1870's the term reached a peak which it did not again equal until 1889. The statistics of public school enrollment and average daily attendance (Table Three) steadily increased during the Depression, paralleling the growth in

TABLE THREE

## School Population, Public School Enrollment, and Average Daily Attendance, 1873-1879

Date	School Population	Public School Enrollment	Average Daily Attendance
1873	13,324,797	7,865,628	4,166,062
1874	15,735,672	8,080,772	4,488,075
1875	15,889,837	8,678,737	4,215,380
1876	14,121,526	8,293,563	4,032,632
1877	14,093,778	8,881,846	4,886,289
1878	14,418,923	9,294,316	5,098,298
1879	14,782,765	9,828,003	5,233,100

school population, each increasing well over one million (the dips in 1875 and 1876 are caused largely by faulty returns: in 1876, for example, three fewer states than in 1874 reported daily average attendance). Likewise the number of teachers employed (Table Four) kept pace with the increase in numbers of pupils.

TABLE FOUR

## Total Number of Teachers, 1873-1879

1873	215,210
1874	239,153
1875	247,423
1876	247,557
1877	257,454
1878	269,132
1879	270,163

School expenditures (Table Five), which might naturally be expected to reflect general economic constriction, remained at a relatively high level throughout the Depression as compared with the 1880's. Royce Pitkin, in his study *Public School Support in the United States during Periods of Depres-*

TABLE FIVE

## Total Amount Expended for the Common Schools per Pupil, 1870-1890

1870	15.55	1881	13.61
1871	15.20	1882	14.05
1872	15.93	1883	14.54
1873	16.07	1884	14.63
1874	15.85	1885	15.12
1875	15.91	1886	15.06
1876	15.70	1887	15.07
1877	14.64	1888	15.58
1878	13.68	1889	16.51
1879	12.97	1890	17.22
1880	12.71		

sion, employs statistics on school appropriations coupled with commodity price index figures to prove that the actual purchasing power of school

expenditures and teachers' salaries increased in most states during the 1873-78 period as compared with 1870-73. His conclusions, both as to enrollment and expenditure, essentially substantiate the tables here presented. This is significant since he based his findings on a close study of state reports, and in 1893 the U.S. Commissioner of Education warned that the national reports needed to be read with caution, since he had discovered duplication in certain enrollment figures. The rapid increase in the permanent school funds (Table Six), resulting partly from the sale of public lands, created a public school endowment which eased the taxpayers' burdens during the tight years of the slump.<sup>7</sup>

TABLE SIX

Permanent School Fund, 1873-1879			
1873	\$77,870,887	1877	100,127,865
1874	75,251,008	1878	106,138,384
1875	81,486,158	1879	110,264,434
1876	97,227,909		

## III

While these statistics offer significant evidence of continuing support for the common schools during the Panic, economic distress lent new urgency to opponents of public education, in particular to advocates of parochial and other private schools competing with the free schools for funds and students. In 1875 the Englishman Francis Adams wrote in his perceptive study *The Free School System of the United States* that Catholic insistence on the diversion of public funds to parochial schools was the "one thing, and one thing only" threatening the American public school.<sup>8</sup> Catholic demands were highlighted and magnified by a latent Know-Nothing element in the Republican party. A political pamphlet called *Politics and the School Question*, for example, warned blatantly that the common schools would be endangered by a Democratic victory in 1876. After quoting President Grant's and James G. Blaine's remarks on the sacredly non-sectarian nature of public education and applauding the resolution of the Republican national convention prohibiting allocation of public funds to parochial schools, the pamphleteer claimed a conspiracy between the papal hierarchy and the Democracy: "Cardinal McClosky says: 'We must take part in elections, the interest of the church demands it,' for the success of the Republican party would for a long time arrest the progress of Roman Catholic aggression, hence [Catholics] will

<sup>7</sup> The tables are compiled from the following Reports of the U.S. Commissioner of Education: Report for 1880 (Washington, 1882), xxxvii-ix; Report for 1889-90 (Washington, 1893), I, 36-37 (the commissioner's cautions concerning the statistics are in I, 10-11, of this Report; Pitkin, *Public School Support*, ch. 3.

<sup>8</sup> Francis Adams, *The Free School System of the United States* (London, Chapman and Hall, 1875), 95.

move in solid mass in every state against the party pledged to sustain the integrity of the public schools."<sup>9</sup>

Such partisan accusations, coupled with the burden of supporting church schools while paying taxes during the lean years of the 1870's, only increased Catholic fervor to ensure sectarian teaching of their children partially at state expense. As Francis Adams pointed out, a dormant Protestantism, manifest in reading the King James Version and in teaching Protestant morality under the guise of a universal ethical consensus, lent some credibility to the Catholic contention that the public system violated their beliefs. And when anti-papists railed at public appropriations like the \$18,616.78 given to the Roman Catholic Orphan Asylum School by New York City in 1874, they conveniently neglected to criticize similar outlays to Protestant schools. Yet when State superintendents advocated a purge of all traces of Protestantism in the public institutions, Catholics in some quarters protested that secular training was even less desirable, holding that "American Protestantism of the orthodox stamp is far less evil than German infidelity."<sup>10</sup>

If the years of the Depression witnessed a resurgence of the controversy which had raged between Catholics and advocates of non-sectarian education in the 1840's, it was also a time when Protestant sectarians resurrected some of the arguments used against Horace Mann during his tenure as secretary of the Massachusetts Board of Education. There was a difference now, however, for at this later time the most frequent object of attack was not a secular common school but rather the newly organized state university which competed with the plethora of denominational colleges. Protestants were mainly satisfied with the "moral culture" of the public schools, although one anxious observer called it "gossamer reins, indeed, as it seems to us, for the passions stimulated by the corruptions of the great city."<sup>11</sup> Yet often the same groups which endorsed the common schools considered the state universities pagan, believing, as one critic commented, that "A little English without the catechism *may* be Christian, but a little Latin without it *must* be heathenish."<sup>12</sup> To justify this distinction Protestants argued that the sectarian colleges were academically superior and that instruction in a state university was based on the godless scientific method, itself a "sectarianism of scepticism and irreligion." Other favorite, if less pious, contentions were that the citizens were too poor

<sup>9</sup> The National Anti-Papal League (?), *Politics and the School Question...* (n.p., 1876?), 11 ff.

<sup>10</sup> Adams, *Free School System*, 146 ff., 169; Board of Education of the City and County of New York, *Thirty-Third Annual Report for the Official Year Ending December 31, 1874* (N. Y., 1875), 164.

<sup>11</sup> Anon. "Education," *The Atlantic Monthly*, XXXV (1875), 5; for Mann's conflict with Protestant sectarians see Raymond Culver, *Horace Mann and Religion in the Common Schools* (New Haven, 1929).

<sup>12</sup> L. F. Parker, *The Abuse of Grant's Des Moines Speech* (Davenport, Iowa, Gazette Company, 1876), 17.

to support higher institutions, that the "sweating, toiling operative" should not be forced to pay for the education of the rich man's son, and that the state colleges interfered with the laws of academic supply and demand. Possibly the label of infidelity frightened a few students from the public universities, but throughout the 1870's the state schools flourished, while the sectarian institutions maintained their customarily high mortality rate.<sup>13</sup>

For private schools in general the Depression era was devastating, and some of the most virulent criticism of public education resulted from this acute struggle for survival. Reported enrollment in private schools fell from 472,483 in 1873 to 186,385 in 1875, and only slowly rose again after this nadir.<sup>14</sup> One of the leading supporters of the common schools outlined and attacked the sorts of arguments advanced against the common schools by private schoolmen and their followers (what one labor leader called the aristocracies of "caste, culture, and education"): public schools negate the authority of parents and of God by making the state the arbiter of instruction, and hence destroy the more responsible private school system; they expose tender children to a "coarse vulgar teacher, vexed and goaded by cheap whiskey" who "may wreak his brutal wrath on your noble boy, your delicate, shrinking daughter"; public education makes workers ambitious, thus violating the divine plan, since a "child, by God's appointment, inherits the physical, moral, and intellectual characteristics of its parents."<sup>15</sup> Such an argument was, of course, self-defeating, since the suggestion that the state could promote social mobility through education contradicted the concept of hereditary and divinely sanctioned aristocracy. One writer pointed out, however, that widespread unemployment caused by the Panic did provide opponents of the schools with apparent proof that public education gave the common man a distaste for common work and offered critics "a coveted opportunity to renew their assault on public education."<sup>16</sup> The social unrest of the Depression probably gave enemies of the common school a somewhat larger sympathetic audience than they might otherwise have enjoyed, yet the statistics of support suggest that their contentions convinced few people.

<sup>13</sup> M. B. Anderson, *Voluntaryism in Higher Education* (N. Y., 1877), 18; Anon., "Colleges and State Universities," *The New Englander*, CXXIV (1873), 456, 461.

<sup>14</sup> U.S. Commissioner of Education, *Report for 1880* (Washington, 1882), xxxix; even allowing for the inaccuracy of the statistics on private schools, as referred to above, the drop in enrollment was undoubtedly substantial.

<sup>15</sup> Edwin E. White, *The Relation of Education to Industry and Technical Training in American Schools* (U.S. Bureau of Education, Circular of Information, no. 2, 1881, Washington, 1881), 14; Barnabas Sears, *Objections to the Public Schools Considered...* (Boston, J. Wilson and Son, 1875), 7 ff.

<sup>16</sup> White, *Relation of Education to Industry*, 14; one extremist critic, Zachariah Montgomery, in a pamphlet called *Poison Drops in the U.S. Senate...* (Washington, 1886), adroitly turned the tables on the apologists of education who naively adduced statistics to 'prove' that the common schools cured all evils by demonstrating with an equal passion for figures that public education produced crime, suicide, poverty, and mental illness.

## IV

Although American public education did not lack opponents during the Panic, whether their disenchantment stemmed from private interest, honest principle, or eccentricity, the most striking aspect of the debate on the schools was the re-assertion of the arguments which the common school reformers had employed a generation earlier. American faith in schooling had become an orthodoxy little challenged by the social unrest of the Depression era, perhaps reinforced by it. Calvin Wiley had claimed that such was the case during the Panic of 1857:

Indeed I cannot discover that our Common School System suffered at all, in its actual operations, or in its hopes for the future, by the late widespread financial disasters; on the contrary, it seems to me to have taken a stronger hold on the public confidence by the contrast which the stability of its resources and the certainty of its operations have presented to the fluctuations and embarrassments of all other interests.<sup>17</sup>

In a book called *The Theory of Education in the United States* a group of prominent college presidents, state and city school superintendents, and other representative educators reiterated in 1874 the traditional rationale of the common school reformers: a knowledge of the rudiments of education would add 25% to the productivity of laborers; education would create safeguards against the illusions of communism and anarchism and would make private property secure; and the public schools would furnish the major agency for converting the hordes of immigrants to orthodox Americanism. In 1872 the Commissioner of Education had assembled a battery of conservative arguments and statistics on *The Relation of Education to Labor* reminiscent of the Whig crusaders of the ante-bellum era, but with somewhat more ominous overtones. "Labor's tidal wave of agitation" was at hand, he warned, and "questions of the hours of labor, of the relations between labor and capital, of the importation of cheap Chinese labor . . . all come up in varied forms and show an activity of thought among workingmen which will require to be met by intelligent argument."<sup>18</sup> "Educated skill is the best constable" was a slogan which appealed to employers in the troubled 1870's, yet on the other end of the economic spectrum some representatives of labor groups, as in the Jacksonian period, turned to education with quite different purposes in mind. One spokesman of the workingman in a speech on the influence of education

<sup>17</sup> As quoted in Pitkin, *Public School Support*, 52.

<sup>18</sup> Duane Doty and William T. Harris, *A Statement of the Theory of Education in the United States of America* (Washington, 1874), 12; John Eaton, *The Relation of Education to Labor* (U. S. Bureau of Education, *Circular of Information*, April, Washington, 1872), 117, 121; for the earlier arguments see Cremin, *Common School*, part 2, and the writings of the reformers.

upon labor regarded education as a remedy for the strangle-hold of business in the country, "our ultimate security against the incorporated moneyed aristocracies, the *imperium in imperio*." With public instruction to balance the scale against "corporate absolutism" workmen "would be the acknowledged masters of society and would dictate its laws."<sup>19</sup> Disparate groups thus could unite on education as a panacea, with apparently little disillusionment over earlier promises still unfulfilled.

One sign of renewed concern for the schools was a vigorous campaign to make public instruction compulsory. The increase of child labor during the Depression, together with the persistent difficulty of educating poor immigrant children and youth in isolated rural districts, aroused interest in effective compulsion, which Francis Adams called "the greatest want under which the American system labours."<sup>20</sup> Although eight states and the District of Columbia had some form of compulsory attendance laws by 1873, parents, employers, and poor administration often conspired to vitiate the enforcement of the statutes. The Massachusetts law, the earliest and one of the most stringent, imposed a penalty of twenty dollars on parents or guardians of children between eight and fourteen who did not attend school for at least twenty weeks during the year; but it left the provision of truant officers up to the towns, 215 of which failed to furnish them in 1875. New Hampshire and Michigan sought to compel attendance by requiring all taxpayers to inform on delinquent children, but this system of amateur espionage worked poorly. Indirect compulsion through child labor laws proved impracticable in Pennsylvania, Connecticut, and Rhode Island because of the need, or greed, of employers and parents for the profits of working children. One observer of educational conditions in the anthracite regions of Pennsylvania noted that the acute problems posed by the influx of immigrant children were ignored by the absentee owners of the mines, but he pointed out that the schools were at fault, too, for failing to provide a more vocational and less literary curriculum more appealing to miners' children "full of rude health."<sup>21</sup>

In response to a demand for more effective public education nine states in the north and west enacted compulsory attendance laws during the Depression for the first time and statutes were tightened in several other states. Massachusetts, for example, in 1873 empowered school boards to appoint truant

<sup>19</sup> J. W. Patterson, *Influence of Education upon Labor . . .* (Springfield, Mass., C. W. Bryan & Company, 1873); Terence V. Powderly, *The Path I Trod* (N. Y., Columbia University Press, 1940), ch. 17.

<sup>20</sup> In 1870, 739,164 children between 10 and 15 were reported in the labor force, but by 1880 there were 1,118,356 in the same category: U. S. Census Office, *Compendium of the Ninth Census* (Washington, 1872), 596, and *Compendium of the Tenth Census* (Washington, 1883), Part II, 1358; a full comparative study of statistics of child labor during periods of depression would probably shed light on attempts to make education compulsory; Adams, *Free School System*, 115, 113 ff.

<sup>21</sup> Adams, *Free School System*, 122, 127, 130; Eaton, *Relation of Education to Labor*, 121, 117 ff.

officers and built truant schools for special discipline and instruction. In 1878 the state put teeth in the law by depriving towns of the school fund allotment if they were lax in finding delinquents. The effect of such laws was hard to determine, since extraneous factors like weather and epidemics could upset statistics more than laws, but there is some evidence that the attendance laws of New York in 1874, for example, did lower truancy.<sup>22</sup>

While these states tried to make elementary schooling more effective by making it compulsory, in 1874 the Michigan Supreme Court rendered an influential verdict in the Kalamazoo case on the right of school authorities to levy taxes for the support of high schools and for the instruction of students in languages other than English. Associate Justice Thomas M. Cooley, who wrote the historic decision, stated the general position of the complainants:

The argument is that while there may be no constitutional provision expressly prohibiting such taxation, the general course of legislation in the state and the general understanding of the people have been such as to require us to regard the instruction in the classics and in the living modern languages in these schools as in the nature not of practical and therefore necessary instruction for the benefit of the people at large, but rather as accomplishments for the few, to be sought after in the main by those best able to pay for them, and to be paid for by those who seek them, and not by general tax. And not only has this been the general state policy, but this higher learning of itself, when supplied by the state, is so far a matter of private concern to all who receive it that the courts ought to declare it incompetent to supply it wholly at the public expense.<sup>23</sup>

This argument, like the complementary one that the district had no right to appoint a school superintendent, probably appealed to some hard-pressed taxpayers, but the court was unequivocal in upholding the school district on grounds both of law and of public policy. "We supposed it had always been understood in this state," said Cooley in defending the high school, "that education, not merely in the rudiments, but in an enlarged sense, was regarded as an important practical advantage to be supplied at their option to rich and poor alike, and not as something pertaining merely to culture and accomplishment to be brought as such within the reach of those whose accumulated wealth enabled them to pay for it." This case proved an important precedent for other decisions on the legality of a tax-supported high school, and the number of public high schools mushroomed from 160 in 1870 to 800 in 1880, while enrollment in private secondary schools declined.<sup>24</sup>

<sup>22</sup> U.S. Commissioner of Education, *Report for 1888-89*, I, 47 ff., 49, 500.

<sup>23</sup> This case is reprinted in Edgar Knight and Clifton Hall, eds., *Readings in American Educational History* (N. Y., Appleton-Century-Crofts, 1951), 544-554; the quotation is on page 547.

<sup>24</sup> Edwin G. Dexter, *A History of Education in the United States* (N. Y., The Macmillan Company, 1904), 173; U. S. Commissioner of Education, *Report for 1880*, ix, x. The high

Although no states had made high school attendance compulsory, the right of states and local school districts to create and support secondary schools became more firmly established than ever during the Panic.

## V

The 1870's were an era not only of spirited justification of public education on all levels, but also of active innovation in educational theory and practice. This experimentation took two main forms: the development of institutions relatively new to the American scene, such as the kindergarten and the graduate school of arts and sciences; and the attempt to adjust existing school systems to changing conditions and new notions of the purposes and nature of learning. Of the latter kind of reform, John Dewey said about the work of Francis Parker in Quincy, Massachusetts, in the midst of the Depression, that

Colonel Parker came when the idea of the common schools had received universal recognition; but there was little social enthusiasm, little moral idealism, embodied in the system. The external machinery was there, but it needed to be taken possession of by the spirit of life. It was Colonel Parker more than any other one man who insisted that the magnificent machinery that American democracy had created should also be made effective for the moral aims of democracy. The timeliness of his work is evidenced by his success.<sup>25</sup>

In 1873 Susan Blow opened the first public kindergarten in the United States in St. Louis. The city's Superintendent of Schools, William T. Harris (later the U.S. Commissioner of Education and a prominent philosopher), was an aggressive proponent of the kindergarten idea, and the number of public and private kindergartens multiplied rapidly to 300 in 1880 in thirty cities, while ten training schools for teachers were created and the number of students more than tripled. Susan Blow had been a disciple of Elizabeth Peabody, the founder of the first English-speaking kindergarten in Boston in 1860 in accordance with the rationale of education developed by the German reformer Friedrich Froebel. Froebel had described in his work *The Education of Man* a type of pre-primary school in which children would learn about nature and music and develop simple manual skills in a utopian society whose unity was symbolized in certain ritualized games and exercises. Superintendent Harris, disregarding some of the more mystical elements which had led the Prussian government to consider the kindergarten a subversive idea, stressed the fact that these classes prepared the children "for the arts and trades" and

school figures which Dexter presents may be somewhat inaccurate; exact statistics are hard to obtain since the line between elementary and secondary and between public and private schools was often obscure.

<sup>25</sup> As quoted in Merle Curti, *The Social Ideas of American Educators* (Patterson, N. J., Littlefield-Adams, 1959), 374.

indoctrinated them with proper ideas of social obligation, while pointing that all this could be purchased at the low cost of \$5 per pupil per year.<sup>26</sup>

Clearly, Francis Parker's innovations in the Quincy school system reflected the spirit of the kindergarten movement. In an enthusiastic essay on *The New Departure in the Common Schools of Quincy* Charles Francis Adams described this educational revolution. He portrayed the school board's alarm when in 1873 it examined pupils and found that they could recite grammar mechanically and read by rote, but that they stumbled badly when asked to compose *ex tempore* and were bewildered when asked to read at sight. Incensed by evidence that the schools had run in the same rut for a decade despite rising costs (from \$6 per pupil in 1863 to \$15 in 1873), the Quincy school board sought radical yet economical improvement.<sup>27</sup> Finding the time opportune to test his theories about teaching, Colonel Parker accepted the superintendency of schools. The Quincy system suffered from the unimaginative lock-step common at the time, Parker believed, and the reasons for his vigorous dissent from academic orthodoxy become clearer when one examines the following admiring description of discipline in a pamphlet purporting to represent a consensus of belief among most educators:

Military precision is required in the manoeuvering of classes. Great stress is laid upon (1) punctuality, (2) regularity, (3) attention, and (4) silence, as habits necessary through life for successful combination with one's fellow-men in an industrial and commercial civilization.<sup>28</sup>

In an age which would produce Edward Bellamy's industrial army and Elbert Hubbard's *Message to Garcia*, Parker was an iconoclast, for he had seen enough of army discipline during the Civil War and bore no special brief for the virtues of the Horatio Alger hero.

When Parker came to Quincy in 1875 after a year and a half in Germany studying the educational philosophies of Froebel and Pestalozzi, he tried to realize some of the principles gleaned from their writings. Since he maintained that there was no such thing as a Quincy system "unless we agree to call the Quincy method a spirit of study and the Quincy system one of everlasting change," it is difficult to describe his reforms. He was firmly convinced of the value of self-expression and introduced the arts and manual training as means of giving free play to a child's creative instincts. Likewise he believed that the child should be encouraged to discover and interpret facts rather than memorize and recite, being "an organism which assimilates; not so much raw ma-

<sup>26</sup> Susan Blow, *Kindergarten Education* (Nicholas M. Butler, ed., *Education in the United States*, monograph no. 2, 33-76, Albany, 1900) 35 ff.; Ellwood P. Cubberly, *Public Education in the United States...* (Cambridge, 1919), 318 ff.

<sup>27</sup> Charles F. Adams, *The New Departure in the Common Schools of Quincy...* (Boston, Estes and Lauriat, 1881), 31. Adams' own role in reforming the Quincy schools would be a valuable subject to explore.

<sup>28</sup> Doty and Harris, *Theory of Education*, 14; see also Curti, *Social Ideas*, 376 ff.

terial to which any desired shape can be given." To Charles Francis Adams, as to most of the thousands of visitors to the Quincy schools, the most striking result of Parker's innovations was the enthusiasm of the pupils, who learned geography by molding continents of clay, and who actually seemed to enjoy Parker's new technique of teaching reading and writing which stressed topics designed to arouse curiosity. Besides, as Adams said, Parker's reforms were economically as well as pedagogically impressive since the cost per child dropped \$4 from 1875 to 1878.<sup>29</sup>

Parker's accomplishments indicated to Adams that in Massachusetts alone trained superintendents could have saved two million dollars then being wasted by poor administration, and the schools would have been better in the bargain, since too often superintendents were clergymen without parishes, politicians out of office, or grammar-school teachers gone to seed. In his *Report for 1873* the U.S. Commissioner of Education had prophesied the possible influence of such men as Parker: "Let one, energetic, scholarly, judicious, with thorough knowledge of the subjects to be taught and of the happiest methods of instruction, give his whole time and heart to this great work, and there will be a leverage beneath the schools to lift them to a higher elevation." When he looked at school administration again in 1879, he found that some of the conditions deplored in his earlier report—low pay, low prestige, and low standards of training which made most men regard superintendency as an unremunerative sideline—had improved. Here and there city school boards were deciding that a competent superintendent was a sound investment both financially and educationally, and the belief that superintendents should have a "most liberal education, with a scientific and enlightened knowledge of educational systems" was displacing the notion that any man, especially if he had had some business experience, could easily pick up the knack of superintendency. Although the methods and philosophy of business had tended to dominate school administration, in part due to the rapid growth of the school plants and population in cities, towards the end of the Depression came the realization that an exaggerated concern for commercial methods had "introduced too much of the formalities of business operations into all the school exercises, thereby hindering somewhat the progress of individual minds and preventing the ready adaptation of the school to changing social and industrial conditions according to the most approved pedagogical principles." This disillusionment with the sanctity of business and quest for professional expertise in school administration helped to create a demand for advanced training in education, which the University of Michigan met when it established a chair of pedagogy in 1878.<sup>30</sup>

<sup>29</sup> Curti, *Social Ideas*, 378; Adams, *The New Departure*, 34-35, 43-45, 64.

<sup>30</sup> U.S. Commissioner of Education, *Report for 1873*, cxviii; *Report for 1879*, lxiv, xxvi; Adams commented sarcastically (*The New Departure*, 62) that the bureaucrat's "ideal . . . was masses of children, designated from usage by names instead of conveniently by numbers, who learned certain rules by heart and applied them with mechanical correctness."

From various quarters during the 1870's came pleas for the professionalization of teaching as well as supervision, especially since it was a persistent temptation during the lean years to substitute cheaper inexperienced teachers for proven ones. In an article called "Wise and Unwise Economies in Schools" President Charles W. Eliot of Harvard attacked this trend and argued for an improvement of the status of teachers by granting them tenure and a stable and respected social position free from the blight of political patronage and the narrowness of penurious school boards. "A good school," he reiterated, "is not a grand building, or a set of nice furniture, or a series of textbooks selected by the committee, or a programme of studies made up by the superintendent . . . a good school is a man or woman."<sup>31</sup> The turnover of teachers was high, then as now; the average term of service was three years in 1873. Since the school year was usually only eight months and the compensation meagre, instructors were often forced to turn to other work to stay alive, and their semi-white-collar status allowed them to step into jobs offering greater stability and ease than was possible in the public schools. While these problems were hardly solved during the 1870's (not to speak of the 1960's), educational leaders like Eliot and the U.S. Commissioner of Education paid vigorous attention to them with considerable progress on one front, that of training teachers. In 1873 the commissioner and several state and city school superintendents argued for state subsidy of normal school students provided they agree "to render appropriate service in the schools." The number of students receiving normal school training jumped from 16,620 in 1873 to 40,029 in 1879; this instruction, while far from ideal, was vastly superior to the hap-hazard attainments of the average teacher in the common schools at the time.<sup>32</sup>

Another reform movement was an attempt, especially by the colleges, to define and sharpen the line between secondary schools and colleges, and to improve instruction in the high schools by accreditation and by better entrance examinations. The U.S. Commissioner of Education pointed out in 1873 that the competition of second-rate colleges for students and endowment had lowered the standards of higher education, many of the so-called colleges being in fact inferior to the better academies, and he suggested that many of the small schools be converted into secondary institutions to relieve the stronger colleges from having to run annexes to prepare students to enter the freshman class (he estimated that western colleges had to offer pre-college work to eighty-three out of a hundred students, as opposed to one in a hundred in the eastern institutions). Finding it difficult to recruit teachers because of low salaries and uncertain tenure, secondary schools were often glorified elementary schools and enjoyed little consistency of standards; in 1873 visitors at

<sup>31</sup> Charles W. Eliot, "Wise and Unwise Economy in Schools," *The Atlantic Monthly*, XXXV (1875), 714.

<sup>32</sup> Adams, *Free School System*, 176, 181; U.S. Commissioner of Education, *Report for 1873*, xxxiii; *Report for 1880*, ix, x.

West Point judged that most of the thirty-eight per cent of the applicants rejected on grounds of scholarship might have passed had their preparation been adequate. In many cases the college entrance examinations were too narrowly classical, Eliot believed, and in 1875 he inaugurated new standards to test "thorough training in all the elements of a sound education," adding examinations in French or German, English composition, and elementary science to the existing ones in the classics and mathematics. Following the University of Michigan, which had begun accrediting high schools in 1871, the Universities of Wisconsin and California stimulated better standards in secondary education by admitting without examination students from accredited high schools. Foreshadowing a more concerted effort during the 1890's, when committees of the N.E.A. revised the secondary school curriculum, colleges during the 1870's paid serious attention to improving pre-collegiate instruction.<sup>83</sup>

This was only one aspect of the revolution in higher education during these years, that Allan Nevins considers impressive "in view of the check which the Panic of 1873 gave all American activities." A full account of these changes is, of course, beyond the scope of this essay, but a brief look at the more important innovations shows their significance. The statistics of college finance and enrollment illuminate some of the background. Income on endowments increased about \$200,000 from 1872 to 1875, in 1875 accounting for \$2,500,000 of \$8,000,000 total revenue in that year, thus assuring funds free from fluctuations in legislative appropriations and tuition returns (although these investments were, of course, subject to the business cycle). Enrollment of men rose steadily from 52,053 in 1873 to 60,011 in 1879; although the number of women in colleges fell somewhat, Smith and Wellesley, well endowed and strong in the liberal arts, were founded in 1875. And the founding of Johns Hopkins in 1875 under Daniel C. Gilman with an endowment of \$3,500,000 set a pattern for the establishment of other universities later in the century with financial resources on a vast new scale and a devotion to research and breadth of scholarly interests only dreamed of before the Civil War.<sup>84</sup>

In response to many influences, notably the novel interests and competence of German-trained scholars and the utilitarian demands placed upon the state universities, the strict classical curriculum of the old liberal arts college lost its hegemony; one writer commented in 1878 that new subjects had never before been introduced so rapidly as in the 1870's. While a number of new

<sup>83</sup> U.S. Commissioner of Education, *Report for 1873*, xl ix, liv, lxviii; Charles W. Eliot, "Education," *The Atlantic Monthly*, XV (1877), 637 ff.

<sup>84</sup> Allan Nevins, *Modern America*, 280-281; Jesse B. Sears, *Philanthropy in the History of American Higher Education* (U.S. Bureau of Education, *Bulletin*, no. 2, 1926, Washington, 1926), 55; Daniel C. Gilman, *The Launching of a University* (N. Y., Dodd, Mead & Company, 1906), 12; U. S. Commissioner of Education, *Report for 1880*, ix, x.

chairs and courses were being introduced in the older universities—in the fine arts, for example, at Harvard in 1874 and a chair of political science at Columbia in 1876—the land grant colleges were revolutionizing the traditional curriculum. Under President Andrew D. White Cornell was offering courses in electrical engineering, modern literature, agriculture, architecture, art, history, political economy, and civil engineering. Such expanded curricula upset the older prescribed course of studies and made some form of election of courses necessary. In 1878, for instance, Harvard was offering 116 courses, and President Eliot felt that some sort of selection was essential.<sup>35</sup>

During the Depression the widening scope of the curriculum, coupled with the growth of endowed fellowships, encouraged students to do graduate work in the United States. For the first time Harvard granted three Ph.D.s in 1873, and at Princeton forty-two students enrolled in the first year of its graduate school in 1877.<sup>36</sup> Johns Hopkins from its beginning was a center for advanced research and instruction.

Complementing the growth of graduate schools of arts and sciences was the reform of professional schools during the 1870's which gained impetus from Eliot's reorganization of Harvard's law and medical schools. All too often the medical schools of the period were "joint stock corporations which furnished the least possible tuition for the highest possible profit," and produced a "stream of quacks and incompetents." When Eliot suggested that the Medical School administer written examinations at the end of the professional training, the faculty protested that it wouldn't work because the students couldn't write well enough, while oral examinations were "formal but not formidable; in fact, rather like the mad tea party in 'Alice in Wonderland.'" The Law School was little better, requiring for a degree only a payment of three term bills and attendance for eighteen months. Eliot remedied the situation by enforcing stiff entrance and graduation examinations and by attracting able students and faculty members, such as Christopher C. Langdell, who introduced the case study method to the Law School. Thus under the forceful leadership of a new generation of college presidents, American colleges and universities witnessed a multiplicity of reforms reaching downward into the secondary schools and continuing upward into the graduate schools, transforming much that was obsolete and introducing many of the best practices of European universities. Yet by disrupting the traditional synthesis of values in the old liberal arts college, the innovations of the 1870's created the need to find a new synthesis, a problem left to later generations.<sup>37</sup>

<sup>35</sup> Charles F. Thwing, *American Colleges: Their Students and Work* (N. Y., Putnam, 1878), I, 18, 20 ff.; Andrew D. White, *Autobiography* (N. Y., The Century Company, 1905), II, *passim*.

<sup>36</sup> Henry James, *Charles W. Eliot: President of Harvard University, 1869-1909* (Cambridge, Houghton-Mifflin Press, 1930), I, 245; Thomas J. Wertenbaker, *Princeton, 1746-1896* (Princeton, Princeton University Press, 1946), 203.

<sup>37</sup> Charles W. Eliot, *A Late Harvest . . .* (Boston, 1924), 126-127; U.S. Commissioner of Education, *Report for 1875*, xcvi; James, *Eliot*, 269-275, 289 ff.

Not only was higher education transformed during the years of the Panic, but an important new form of adult education began in 1874: the Chautauqua movement, which originated as a Sunday school normal institute at Lake Chautauqua, New York. John H. Vincent, a Methodist clergyman, and Lewis Miller, an inventor and manufacturer of farm machinery, were spurred by the success of the first assembly to make it a broad summer school giving courses in history, languages, and other academic subjects to extend its influence beyond the church. Although the founders insisted that Chautauqua assemblies were not educational camp meetings, their wide appeal and rapid growth to 8,000 people by 1878 indicated an intellectual awakening akin to religious revivalism. In the same year the Chautauqua Literary and Scientific Circle, a four-year reading course, was formed to bring higher education within the reach of the average person; 800 were graduated in the first class in 1882. The lectures and classes at the summer school appealed especially to the middle class, for here was culture at low cost with the sanction of religion.<sup>88</sup>

## VI

From kindergarten through graduate school, then, American education not only enjoyed substantial support and made steady statistical gains during the Depression years, but also experienced an era of forceful reform. The poverty resulting from the Panic had lent some force to critics of the common schools who were quick to publicize the inadequacies of public education. Yet the dominant response of Americans during the period was to attempt vigorously to correct these faults, rather than to use them as excuses for attacking the common schools, and to regard the social dislocations of the 1870's as cause, not to repudiate, but to reaffirm the old arguments and inherited articles of faith. Indeed, the record of education during these years largely confirms the remark made at the end of the Depression by Charles Francis Adams: "The common schools are the one thing in regard to which there is no division of opinion in America. The people of this country cling to them and lavish appropriations upon them in the firm belief that they are the ark of the national salvation."<sup>89</sup>

In the 1870's, as in the 1840's and 1850's, Americans seemed to see the schools as a means of promoting a social consensus broad enough or ambiguous enough to unite the employer concerned with signs of social revolution and the laborer worried about his decline in status, the reformer eager to test new ideas and the conservative anxious to preserve the old. In some reforms or innovations in educational agencies, as in the case of the kindergarten,

<sup>88</sup> John H. Vincent, *The Chautauqua Movement* (Boston, Chautauqua Press, 1886), 17; Jesse Hurlbut, *The Story of Chautauqua* (N. Y., Putnam, 1921), 80 ff.; Rebecca Richmond, *Chautauqua: An American Place* (N. Y., Duell, Sloan, and Pearce, 1943), 82.

<sup>89</sup> Adams, *New Departure*, 51.

Chautauqua, and the revolution in higher education, the force of the Depression seemed to be very indirectly felt if at all; or, as in the example of Parker's work, the contemporary demand for efficiency and economy may simply have provided leaders with an opportunity to express and test ideas which they had already developed before the Depression began. Much of the evidence of the relative prosperity of the schools during these troubled years indicates also that as institutions they possessed considerable internal momentum and autonomy. This exploratory essay may suggest ways in which scrutiny of education during other periods of unrest can provide some clues to the complex interaction of school and society, the degree of social responsiveness or independence of educational agencies, and perhaps some new perspectives on transitions in education.

## *Book Reviews*

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*Education in the Forming of American Society, Needs and Opportunities for Study*, Bernard Bailyn. University of North Carolina Press, Chapel Hill, 1960. 147 pp. \$3.50.

In this, the latest volume in the "Needs and Opportunities for Study Series" published for the Institute of Early American History and Culture, Bernard Bailyn of Harvard departs from the approach taken by his predecessors to offer a hypothesis about the development of early American education and to suggest work that needs to be done if it is to be confirmed, revised, or refuted. His hypothesis is daring. It begins with the assertion that education must be thought of "not only as formal pedagogy but as the entire process by which a culture transmits itself across the generations."

The first settlers in America, the argument runs, assumed that their culture would be passed on through the old and familiar means. The society they left in England had long depended on forms of education which were "largely instinctive and traditional, little articulated and little formalized." The family, not schools, served as the central agency of education. Composed of children who often stayed within it after they matured, as well as nieces, nephews, cousins, and servants, it was a large unit presided over by the father. A restrictive economy reinforced his authority by discouraging members of the family from breaking away and establishing their own households. Under his direction the family infused ideas into child, invested him with moral standards, taught him acceptable behavior, and ushered him into the larger world. Frequently it gave him rudimentary vocational training as well, and in the case of families of laborers and tradesmen, all the preparation he required to earn a living. The town or village and the church took up where the family left off, giving the youth further experience and introducing him to "the system of thought and imagery which underlay the culture's values and aims." To the school, the last instrument of education, was left simpler and less ambitious tasks. Strictly utilitarian, it did not deliberately inculcate a love of literature or science. Its responsibility was merely to equip a few children for occupational and social roles.

In America—which demanded a new set of ideas and responses—the European heritage was drastically altered. The family in particular could not survive in its old form in the new environment. The American economy with its cheap land and varied opportunities was disruptive, luring sons, relatives, and servants away to set up their own establishments. As the size of the family contracted, it lost much of its stability and many of its connections with society at large. For its educational functions the results were drastic: no longer could it ease the child's entrance into the external world, and no longer could it furnish elementary education and training. Consequently a new attitude developed in the child: he became insular, individualistic, conscious of himself as standing outside society.

Dismayed by this crumbling of the family's functions the colonists attempted to restore the traditional arrangements by a series of enactments charging children with responsibilities to their parents and authorizing severe penal-

ties, including death, for disobedience. Laws ordering parents and towns to provide education were also passed. They were a first stage of a process in which education became deliberate, formal, an instrument of social policy. Responding to a situation in which multiplicity rather than orthodoxy was the rule, religious sects also took on an educational cast, sending missionaries to the frontier to convert whites and Indians alike, and founding schools and colleges.

None of these movements in education was deflected by the Revolution. The Revolution in fact established their direction more firmly by clearing away legal impediments and by rationalizing them "in a framework of enlightened political thought."

Mr. Bailyn's suggestions for further study and his comments on existing work are less startling than his hypothesis. Although he would like to see "broad-scale interpretations" of the transfer of European civilization to America and of the colonial response to the fear of barbarism which he says spurred the passage of the first educational laws in the colonies, he concedes that investigation of more specific questions may illuminate many sides of the general picture. He is right, of course; much work needs to be done before his or any other interpretation can be accepted. His hypothesis is open to challenge not simply because it lacks detailed studies to support it, but also because he has given existing works and sources a questionable reading.

Take the early laws exacting obedience from children, which Bailyn reports were enacted in all the colonies within a decade of their founding. (He apparently is unaware that Plymouth Colony passed no such laws until 1672.) For Bailyn, who sees them as a response to the splintering of the family, the laws furnish an index to a social situation. He fails to consider the possibility that they had their origin in Puritan social theory. Human nature, this theory held, had been so tainted by the fall that not even heads of families—who were divinely commissioned—could be trusted to carry out the laws of God. When law-making powers came into their hands, Puritans naturally passed laws enjoining parents to enforce discipline.

Bailyn has also overestimated the significance of the structural change in the colonial family. Servants and matured offspring may have drifted away to set up their own households easily enough, but the conjugal unit did not relinquish all its traditional authority and continued to shape many of the child's root attitudes, as well as his manner and morals.

In New England early statutes enforcing discipline in the family were followed by others placing full responsibility for education on the towns. According to Bailyn, these later laws represented a further attempt to transfer to formal institutions functions once exercised by the family. The enactments themselves testify otherwise. Few English boys learned Latin and Greek at home in sixteenth-century England; they went instead to grammar schools. The Massachusetts statute of 1647 enjoined towns of 100 families to maintain masters capable of teaching the learned languages. This, it seems to me, was an attempt to reproduce an opportunity that existed in England; it was not an attempt to shift a responsibility once met by the family. The action of the state in establishing a colony-wide requirement is the striking feature of the early educational development of New England. It came, as Samuel Eliot Morison has pointed out in the *Puritan Pronaos*, after a period of experimentation in school finance. The experiments conducted by the towns failed,

and the failure convinced Massachusetts' leadership that only the state could direct the channeling of meagre resources into schools.

Bailyn agrees with most historians who have written on education in New England that the observance of the law slackened in the eighteenth century. But since he is aware, as most others are not, that New England was not a region without local peculiarities, he stresses that populous and coastal towns continued to offer good grammar-school education. Inland towns neglected the law or complied only nominally. What emerged was an uneven educational pattern: excellence in some areas—neglect and intellectual poverty in others. This is a sensitive reconstruction from very little evidence. Manuscript court records which I have seen in both coastal and inland counties indicate that for a part of the century it is a sure one. It falters because it relies too heavily on the complaints of the Massachusetts General Court in 1718 of neglect of the requirements and because it projects the situation of 1680-1720 into the remainder of the century. The complaints of 1718 came after nearly fifty years of sporadic warfare with the French and Indians. The following half century was hardly free of fighting but the scene had shifted, leaving New England in relative peace. The result was an improvement in educational standards. Few further complaints about the schools were heard until after the Revolution.

None of these criticisms shakes the heart of Bailyn's hypothesis: education in the colonies did become deliberate, formal, and institutionalized. But so did every other important social and political institution. What Bailyn has described was part of a larger process, a profound tendency toward social complexity. He has reconstructed the process of this change in education with skill and imagination, but he has not emphasized sufficiently its limited character. He has not because he is most interested in how a culture transfers itself from one generation to the next, because, in short, he is most interested in the agencies of education, not in its matter. Change did occur in the externals of education. Schools took on new functions, state participation increased, control came to be vested with groups outside the family, the community formally assumed the burdens of finance. All these shifts were in forms, in mechanisms, not in content.

They are important developments but not as important as how education acted upon early American culture. Bailyn treats this problem almost as an afterthought and misses the most arresting fact of all—the persistence of traditional education throughout a period in which the pace of social change was increasing. The substance of education did not remain altogether untouched, of course. It was enriched by higher mathematics and fresh vocational subjects. But colonial colleges, the great grammar schools, and even the academies continued to offer classical education throughout the eighteenth century. In New England, the curriculum of all the public-supported grammar schools remained almost entirely classical. And within all these schools and colleges, instructors resorted to the traditional books and methods.

This intellectual inertia is striking. Understanding it is as important as grasping the significance of Bailyn's story. Indeed, I suspect that we will not comprehend the full meaning of educational development in the colonial period until we do both.

ROBERT MIDDLEKAUFF  
Yale University

*Justice Oliver Wendell Holmes: the Shaping Years, 1841-1870*, Mark De Wolfe Howe. The Belknap Press of the Harvard University Press, Cambridge, 1957. 330 pp. \$5.00. *Charles Eliot Norton: Apostle of Culture in a Democracy*, Kermit Vanderbilt. The Belknap Press of the Harvard University Press, Cambridge, 1959. 286 pp. \$5.50.

These books are relevant to American educational history broadly considered because both Holmes and Norton were peculiarly perceptive individuals who became fully educated men. That is to say they were shaped by their cultural context—the world of upper class Boston and Cambridge—and then both men (though Holmes more than Norton) found resources in themselves and in their tradition to move forward on their own, to cut loose from their cultural environment and to stand in judgment on it. Beside this both men in their practice and in their theorizing give us light on a current problem in education: How can men be motivated to aim for an ultimate excellence, to make extreme demands on themselves, in the midst of a society where the general level of achievement is mediocre?

Both Holmes and Norton have been fortunate in their biographers. Howe's book has the kind of elegance born of a philosophic understanding that Holmes himself attained. And further Howe does not shrink from skillfully probing the main charge that can be brought against Holmes as a person—that his ambition was narrowly egotistic. Throughout the book one is delighted to come across new bits of pure Holmes as Howe quotes from unpublished letters, e.g., "I early realized the illusion of personality in the really mechanical action of the mind. When I was wounded in the heel, I would see man after man approach with self-gratulatory smile as he made a reference to Achilles. Each had the feeling of personal achievement while he really was moving along the path of least resistance" (p. 156).

Vanderbilt's book is a nicely balanced and concise discussion of Norton's ideas, his personality, and his relation to society. He illuminates Norton's entire life by organizing his book around a main theme: the problem of culture in a democracy. However, readers oriented toward history rather than literature will probably find his treatment of Norton's stand against the Spanish-American War a bit thin. A more extensive use of Norton's letters to Samuel Gray Ward in this period, combined with a better exposition of the depth and intensity of the cultural and political crisis of the western world as it entered on its age of violence, would have improved this section of the book. In his insistence that political action be grounded in ethics Norton could be seen as a courageous conservative defending the liberal-protestant-bourgeois "synthesis" of the nineteenth century against the coarser power politics and relativisms of the new age. His position reveals interesting parallels to Meinecke's hard-won wisdom regarding ethics and power in the nineteen-forties. And yet Norton's stand for a traditional moral order cannot be entirely separated from his desire to preserve a particular social type; thus his anti-Catholicism and anti-semitism assume more than the incidental role that Vanderbilt gives them.

To explain the contrast between Norton's misgivings and Holmes' gusto in facing the twentieth century, one must look at their earlier education. Each moved from his Brahmin background and Harvard training into very different worlds. Holmes's three years of combat in the Civil War was the great

shaping experience of his life; it left him with his tough soldier's faith to which he later added the softer faith of the Spencerian who finds in science a kind of religion. The faiths are similar in that both follow the road of scepticism to its logical end—a kind of reverence for facts, for energy, and for life itself. Standing firm in his existentialist faith with its emphasis on commitment and personal integrity, Holmes never allowed his critical intelligence to destroy the ground on which he himself stood. At the same time he directed devastating critiques at some of the idols of the society from which he had issued. He stands in the long line of Puritan prophets who having struggled alone in the wilderness returned to castigate the weaker brethren for their easy and conventional morality and their preference of comfort and utility to higher enterprises.

If Holmes's experiences made him toughminded, Norton's significant trips to India and Europe and study of Dante made him tender-minded. Out of his aesthetic and moral sensitivity Norton created for himself a kind of religion of cultural and moral values. Though this had a somewhat academic, second-hand tone when compared with the power and immediacy of Holmes's insights, it still gave him adequate resources to probe the weakness and hypocrisy of American society in the Gilded Age. But like most traditionalists he feared that the new age a-coming would not be an improvement on the present with all its admitted failures. So enamored was Norton of social order and culture and morality that he could never bring himself to admit that some of the great periods of cultural creativity had not been notable for morality or social order—both of which he found declining in the 1890's. And so Norton surveyed the past, particularly the middle ages, to find examples of high and noble action to inspire his contemporaries. His first effort in this vein of monumental history had been during the Civil War when he wrote a hortatory essay citing Launcelot and Bayard as strenuous champions of freedom. Holmes wrote to Norton from the field of battle (before the experience of fighting had made him grow sceptical of causes) that he and others felt the need of a knowledge of historical acts of chivalry, "to help us bind our rebellious desires to steadfastness in the Christian Crusade of the 19th century.... If one didn't believe this war was such a crusade, in the cause of the whole civilized world, it would be hard indeed to keep the hand to the sword; and one who is rather compelled unwillingly to the work by abstract conviction than borne along on the flood of some passionate enthusiasms" (p. 71), must be reinforced by the stories of earlier crusades. Later in the century Norton's frequent appeals to noble actions in history were in their way parallel to Holmes's war reminiscences, his wit, and his cosmic impieties. Both would shock the bourgeois out of the dogma that comfort equals civilization.

The criticisms that Holmes and Norton directed at their contemporaries are hardly out of date today, but most of us are more interested in the positive note they sounded. What inspired these men to prefer truth to repose, achievement to conformity? What, specifically, inspired Holmes to say that "The mode in which the inevitable comes to pass is through effort"? Such a statement may well have been born partly of his Civil War experience, his close escape from death and the heightened sense of vitality that such experience often brings. Norton never went to war, but his life-long struggle against ill health seems to have been a challenge in some way related to his fabulous

capacity for disciplined work. Behind these particular experiences of Holmes and Norton was the pervasive pressure of institutionalized pride that is brought to bear on those born into the Brahmin caste of New England, a group that combined in its ideal the ethic of both the Puritan and the aristocrat.

RICHARD D. BIRDSALL  
Connecticut College

*The Communists and the Schools*, Robert W. Iversen. Harcourt, Brace & Co., New York, 1959. 423 pp. \$7.50.

This is a volume in the *Communism in American Life* series, under the general editorship of Clinton Rossiter.

Shortly before the end of this study the author introduces a charming metaphor. Since the rise of Communism, American schools and colleges have been like the heroine of the classic melodrama. Seemingly "weak, innocent, and defenseless," she nevertheless keeps the villain under control, and at the same time performs the even more demanding task of "repulsing the advances of the rescue parties" (p. 368). In thus suggesting that his story is one of tension between schools, communists, and McCarthyites, Mr. Iversen invited the publisher's dust-jacket summary of the book: "How the Communists tried to infiltrate the schools and how the schools fought back."

If the book were this and no more, its inclusion in the comprehensive series on Communism in American life would not have been warranted. Fortunately the book is more than this. The author starts and finishes his study with essays on American education in time of "stress." Specifically, he is at pains to relate his material to the tension associated with the depression, the rise of fascism, the astonishing transformations of the Communist Party line at the time of the Nazi-Soviet pact and of Hitler's move against Russia, the transition from war to cold war, the investigations and the angry accusations of the second Red Scare.

In the three-fifths of the book devoted to developments before World War II, the activities of Communists in the American Federation of Teachers and other organizations are set forth, as is the Party's effort to win a student following through extra-curricular activities. There are no alarmist conclusions. The author emphasizes the Communists' difficulties in trying to make the American teacher a class-conscious agent for the spread of Marxist ideology. He points out that in their efforts to work through teachers, the Communists were attempting to reach American students who were and are influenced, ideologically, relatively little by their teachers and much more by their peers. Mr. Iversen returns several times to this idea, which forms one of the major themes of the book.

In the two-fifths of the book devoted to World War II and since, the author's emphasis shifts away from classroom teaching, extracurricular activities, and teachers' organizations, to the larger community, as he examines the problems encountered by intellectuals in a suspicious and fearful America. A number of the episodes do concern the campus directly (such as the Dirk Struik matter at M.I.T.), but others are not primarily school problems (such as the Oppenheimer case, which receives several pages of summary and comment). The connecting link is the post-war insistence by right-wing critics that suspected or

accused intellectuals were "products of the schools"—a conception about which Mr. Iversen is properly dubious (p. 360). Again there are no alarmist conclusions. The author appears to agree with Granville Hicks that the surprising thing is not that there was so much flirtation with Communism by American teachers and intellectuals during the thirties, but rather that there was so little (p. 326).

The scope of the book is thus a broad and fundamentally significant one, and on the whole it is traced with perception and good sense. Yet there are many vital questions which either are not raised, or are inadequately explored. The efforts to relate "stress" in American education to "stress" in American society are laudable, but the chapters in which this is done are among the more pedestrian. There are repeated assertions that the "milieu" was important, but too little is done to explore that milieu. It is irritating to encounter such naive and overly generalized statements as "The non-Communist, nonmilitant support of the peace strikes . . . is partially explainable in terms of the times," followed by a brief paragraph mentioning the Nye Committee investigation of World War I (p. 132).

The book explores fairly successfully the general attitude of American Communists toward the schools and their ambivalence toward teachers and toward intellectuals in general. At times they seemed uncertain whether to denounce such persons as the tools of capitalism, or to cultivate them as potential fellow workers (pp. 59-61). The study is disappointing, however, on how the American teacher at various levels from elementary through graduate school viewed his own society while the domestic and foreign policy crisis of the thirties developed. A few hundred college people fought in the Spanish Civil War, acting upon a "variety of impulses" (p. 143). But the drama and the sense of urgency about Spain, as they affected those who stayed at home as well as the few who went to fight, are neither set forth vividly nor accounted for adequately. There is no really satisfactory explanation of why more school and college people did not turn to the left, or why more college teachers, exasperated with right-wing boards of trustees, did not become intellectual Marxists. It may be that there is insufficient evidence on which to base such explanations, but a tentative appraisal might have been attempted. Although Granville Hicks and other literary critics figure in the book, there is need for more attention to literature. Presumably this topic was left to Daniel Aaron's volume on Communism and literature in the same series, but some attention to the teaching of literature in the schools and colleges belongs in this one. How were books like *The Grapes of Wrath* and *For Whom the Bell Tolls* handled in the teaching of the thirties?

The effort of Communists to take over teachers' organizations is discussed almost entirely in terms of the stormy career of Local 5, the New York City local of the American Federation of Teachers (A.F. of L.). The Communists captured control of this unit in 1935, and held it until Local 5 was decisively ousted after a nationwide referendum vote by Federation members in 1941. Some parts of this story are told in so much detail that the main lines are obscured. Further, it serves no good purpose to interrupt the dramatic narrative at the end of chapter five, to resume it in chapter nine. More fundamentally, one wonders whether the author might not have cast more light on the struggle for power in other locals. Philadelphia's Local 192, for example, was also ousted in 1941, and yet little information is given about the situation

there. Finally, a word about the post-1941 developments among New York City teachers' organizations would have been better than the abrupt termination of this subject after so much detail on earlier developments. In 1954 Robert Maynard Hutchins declined on political grounds an award by the New York Teachers Union. Is this organization, still in existence as an independent union, the old Local 5? If so, how was its following affected by the expulsion from the American Federation of Teachers? The anticommunist Teachers Guild, on the other hand, became the official A.F.T. local for New York City after the 1941 fight. (Renamed the United Federation of Teachers in 1960, this organization conducted the one-day strike by New York City teachers in November, 1960.)

For the attitudes of teachers in the post-war period, Mr. Iversen quotes from Lazarsfeld and Thielens' *The Academic Mind* with little comment of his own. With respect to the administrators, the author suggests an interesting possibility for further exploration by calling attention to their increasing anxiety over public relations. Administrators, Mr. Iversen finds, have inclined increasingly toward the view that teachers must be as above suspicion as Caesar's wife, and that dullness in expounding harmless ideas is better than brilliance in supporting controversial positions (pp. 336-337, p. 367). Mr. Iversen offers the stimulating suggestion (p. 362) that not only the impact of Communism upon American education, but also the reverse impact of American education upon the Communist Party, merits study. It is to be regretted that he ruled further reflection upon this question out of bounds for the present work.

Cases of stylistic awkwardness appear in the book, most of them in the early pages. Nothing is gained by intruding such jargon as "progressive maturation" (p. 4), "massification" (p. 6), or "the repoliticalization of the American intellectual" (p. 150) into discussions that would be more effective if conducted in simpler language. It may be true that in twentieth-century American education ". . . theory and practice has been largely Dewey dominated" (p. 63), but the observation ought to be made grammatically and more gracefully.

In spite of the criticisms noted in this review, Mr. Iversen has treated an extremely complex topic soundly and intelligently, and in places brilliantly. If his study is not definitive, it is largely because much more work remains to be done than could reasonably be expected of one person, writing in such close proximity to the era which he chronicles. The impact of Communism upon a democratic society, and the response of the society to that impact, must continue to receive study. This is particularly true of the educational field. It may be that Americans have been most worried about Communist espionage and infiltration in government and defense. But it is in the training of the young that the Americans have expressed a deep concern about the *ideological* aspect of Communism. We need a deeper understanding of this matter, for it sheds light not only upon Communism, but upon America itself.

WILLIAM B. WHITESIDE  
Bowdoin College

*John Dewey's Challenge to Education: Historical Perspectives on the Cultural Context*, Oscar Handlin. Harper & Brothers, New York, 1959. 59 pp. \$2.50.

This is the second of a series of annual lectures established by the John Dewey Society. Delivered in 1959, the anniversary year, it was appropriate that a cultural historian be asked to deal with the historical conditions to which Dewey's educational theories are addressed. Professor Handlin devotes most of his time to a sketch of the developments in American education between 1870 and 1910, supplemented by detailed references and notes. He concludes with some comments on Dewey's own program of reform.

Professor Handlin's conception of this development, though mildly expressed, is essentially that of Veblen, of Santayana, and Dewey himself: there was throughout the period a growing "cleavage in our culture."<sup>1</sup> As Santayana puts it:

This division may be found symbolised in American architecture: a neat reproduction of the colonial mansion—with some modern comforts introduced surreptitiously—stands beside the sky-scraper. The American Will inhabits the sky-scraper; the American Intellect inhabits the colonial mansion. The one is the sphere of the American man; the other, at least predominantly, of the American woman. The one is all aggressive enterprise; the other is all genteel tradition.<sup>2</sup>

In an earlier and predominantly rural society the schools were needed chiefly to provide for the formal part of education. The other phases, the social and the vocational, were taken care of mainly by the intimate and stable associations of the home with church and neighborhood and by apprenticeship on the farm or in the shop. With the shift to a highly industrialized society and the concomitant flow of rural migrants and foreign immigrants into crowded towns and cities, schools had to assume an increasing responsibility for the total education of the young. They had to restore the morale of the demoralized, to supplement, even to replace, the original culture of the uprooted. What the schools purveyed as culture was synthetic and artificial. It was, says Professor Handlin, "entirely detached from experience," an attempt to imbue the entire population with the tastes and canons of a genteel tradition conserved and perpetuated by the educated class. Inevitably, the gap between popular and official culture widened.

Marie Syrkin, among others, shows us the devastating consequences. How does one relate *Ivanhoe*, *The Ancient Mariner*, and *Silas Marner*—not to speak of Burke's *Speech on Conciliation*—to the experience of high school students?

Or consider Shelley's *Indian Serenade*. I had shrewdly guessed that Wordsworth's *Ode on Intimations of Immortality* had better be skipped, and I had no great hopes for *Ode to a Grecian Urn*, but Shelley's impassioned lyric seemed to have brighter prospects. "Relate it to

<sup>1</sup> Professor Handlin does not, I believe, use this phrase. It is the title of a *Festschrift* for Max Otto (to which Dewey was a contributor). Cf. Frederick Burkhardt, editor: *Cleavage in Our Culture: Studies in Scientific Humanism in Honor of Max Otto* (Boston: Beacon Press, 1952).

<sup>2</sup> *Winds of Doctrine* (New York: Charles Scribner, 1913) p. 188.

life," I thought. My pupils were young. It was spring. They sang shoddy love-songs by the dozen. Perhaps "love" in the Shelley manner would arouse a sympathetic interest in poetry. But when we finished "I arise from dreams of thee . . .," one puzzled boy, eager for tomahawks rather than champak odours, inquired, "What's the matter with that Indian, anyway?" I have never felt the same about "I die, I faint, I fail!" since then.<sup>3</sup>

If Dewey turned these public schools topsy-turvy, the evidence is hard to find. Professor Handlin states that Dewey had little or no influence before the First World War (pp. 15-16); and Maxine Greene, in an article entitled "Dewey and American Education, 1894-1920,"<sup>4</sup> substantiates this opinion. Yet he also says, "In some sixty years since the experimental school in Chicago opened its doors, John Dewey's ideas have had a profound effect upon American education. Despite the occasional errors in their application to practice and despite the distortions by uncritical enthusiasts, the schools have profited immensely from his influence" (pp. 45-46). This, it seems to me, is an exaggeration; and that I think so makes me suspect that we have different ideas of John Dewey's "challenge to education." His discussion of Dewey's views is too brief for me to be sure.

I do not think that Dewey has greatly influenced public education unless one considers lip service important. His ideas have commonly been perverted by the powerfully entrenched genteel tradition. Nor would it be just to suppose that "progressive" education as it was commonly understood and put into practice is Dewey's offspring. Dewey was not really interested in "methods" as such but in what he called "the progressive organization of subject matter." Teachers should, he thought, be intelligent enough to devise for themselves methods appropriate for dealing with the problem at hand. And he was not interested in subject matter as such but in that subject matter which would promote the "harmonizing of individual traits with social ends and values." What Dewey wanted was a genuine, not a genteel, answer to the question, What should we teach? Answer that question and remaining problems may be solved by following out the logic of the subject matter. In the Laboratory School subject matters were construed as "vocations," and the methods of instruction were those appropriate to learning how the interrelation of vocational activities forms a culture.

Dewey thought that the experiments conducted in his school were at least partially successful. He also thought that the problem of subject matter, once we go beyond the elementary school level, is still unsolved; and that this problem will remain insoluble so long as schools perpetuate the genteel tradition by maintaining the segregation of liberal and vocational studies.

GAIL KENNEDY  
Amherst College

*Studies in the History of Education 1780-1870*, Brian Simon. Lawrence & Wishart, London, 1960. 375 pp. 37s 6d.

There is a fascination for educational historians about the formative years of a nation's educational system. This history of education in England covers

<sup>3</sup> Your School, Your Children (New York: L. B. Fischer, 1944), p. 186.

<sup>4</sup> School and Society 87:2159, 381-386, October 10, 1959.

the ninety-year period from 1780 to 1870 when the coming of age of the Industrial Revolution gave rise to universal elementary education. The book reaches its climax in the Education Act of 1870, the foundation for a universal system of elementary schools under government support and control. This Act brought to a culmination the struggle of many forces to broaden the base of education.

Chapter I, "Forerunners of Educational Reform," describes an England moving into the Industrial Revolution. Foreseeing the educational needs of an industrial society, men of science like Joseph Priestly, Erasmus Darwin, and James Watt through discussion clubs like the Lunar Society helped found academies which taught the new sciences. Supported by Adam Smith the economist, Josiah Wedgwood the pottery manufacturer, and the American-born internationalist Benjamin Franklin, these believers in technology laid down the idea that the coming industrial order required a broader based and more functional kind of education under state auspices.

Chapter II, "Education and the Struggle for Reform," documents the reforms toward middle class aspirations. In the interests of the new rising industrialists, the philosopher James Mill, the utilitarian Jeremy Bentham, and others attacked the established institutions of church and state so long dominated by the landed gentry. They criticized church control of educational institutions, rankled at the exclusiveness of the universities and the endowed grammar schools, and founded new private town and proprietary schools for their youth. For the middle class the founding of the University College of London in 1828 marked a victory over the exclusiveness of the universities of Oxford and Cambridge, and the Reform Act of 1832 became the symbol of political victory.

Chapter III, "The Middle Class and the Education of the Workers," chronicles attempts by the middle class to mold the outlook of the property-less masses along utilitarian lines. The first half of the nineteenth century saw an expansion of Pestalozzi and Fellenberg's manual labor schools, Lancaster and Bell's monitorial schools, Raikes' Sunday schools, and similar charitable educational ventures. In order that right doctrine might prevail as enlightenment spread among the poor, the government passed the Education Act of 1833. By grants to church organizations conducting voluntary schools, the government strengthened charity education. Yet the Act was a milestone in marking the government's recognition of its financial responsibility in educating the poor.

Chapters IV and V, "The Workers' Movement and Education," record the struggle of the laboring class to organize for its welfare. Artisans, small tradesmen, and factory workers laboriously sought self-education through the radical press, by individual study, and by organized classes of Corresponding Societies. They also learned about cooperative societies from such humanitarian socialists as Robert Owen. From Owen's influence came infant schools for children and trades halls for adults. Although the workers' agitation for reform, known as Chartism, was suppressed, the demand for a national system of education became a firm part of the reform movement.

Final Chapters VI and VII, "The State and Education," focus on state intervention in education. The long-standing demand of the radicals resulted in a Royal Commission in 1850 to investigate the universities of Oxford and Cambridge "with a view to assist in the adaptation of those important institutions

to the requirements of modern times" (page 290). The result was the removal of ecclesiastic control and the expansion of science and technology at Cambridge. Similar reform hit the endowed grammar schools through the Clarendon Commission of 1861. Hundreds of smaller private schools throughout the country also came under the inquiring eye of the Taunton Commission in 1864.

These investigations resulted in a host of government acts. The more rationally organized system of secondary and higher education which resulted threw into ever sharper relief the educational deprivation of the poor. The long-fought-for national system of education finally emerged in the Education Act of 1870. Grants were increased to voluntary church schools. Provision was made for locally elected school boards to levy school taxes. Although church schools continued to teach their particular doctrines, religious instruction at board schools was made free of sectarian bias. Most important, local school boards took the first steps toward the principle of compulsory attendance. The cornerstone of universal elementary education was firmly planted. Education for the children of workingmen was no longer a charity but a right.

The attention given to class struggle in this book reflects the author's background. Brian Simon took an honors degree in English and Economics at Trinity College, Cambridge. Before holding his present position as Lecturer in the Education Department of the University of Leicester, he taught in several secondary modern schools. He has also written *The Common Secondary School*, which was reviewed as "vigorous and well-informed." The same may be said of his new history of education.

The book invites an American reviewer to compare early English educational reform with reform in the United States. In both countries it was the emergence of a democratic industrial society which led to universal elementary education. The favorable climate may have come a decade or so earlier in the United States because of new republicanism, the constitutional ideal, frontier conditions, and freedom from the weight of tradition. The reform in England was much more complex and difficult to achieve because of a more rigid class structure, the centuries-old tradition of classical education for a ruling elite, and the long struggle for middle class ascendancy. The political heritage of local control in the United States made easier the gathering of reform forces in such key states as Massachusetts and Connecticut. For the same reason it was easier for state educational leaders like Horace Mann and Henry Barnard to emerge. Uncoordinated educational advances in the various United States made for staggered progress on the national front. When reform did occur in England, it reached everywhere.

How does this book compare with similar studies in American educational history? Simon's book is more scholarly than Ellwood P. Cubberley's *Public Education in the United States*. There is less biographical detail in Simon's book than in Merle Curti's *The Social Ideas of American Educators*, yet the analyses of the educators' social beliefs have the same kind of admirable depth. Simon's wealth of economic, social, and political background is reminiscent of Edward Newton and Herman G. Richey's *The School in the American Social Order*. Where Edgar W. Knight's *Education in the United States* has a Southern regional stress, Simon's coverage is more equitable and comprehensive.

This reviewer recalls two American educational histories approaching the

caliber of Simon's book in the selection of facts, clearness of presentation, and standard of scholarship. Paul Monroe's *Founding of the American Public School System* was based on sound original sources. Lawrence A. Cremin's *The American Common School* is noteworthy for its probing into the origin of the common school within the context of social forces at work in the new republic.

Simon's documentary evidence consists of published biographies and periodical literature of the time, nineteenth century British newspapers, academic theses, and government documents. This book presupposes prior knowledge of economic, social, and political history. In this sense it is less useful as a beginning text than it is as a monograph of scholarly depth for the advanced student. For the latter purpose it is an indispensable work.

FRANKLIN PARKER  
*University of Texas*

*The Education of a Gentleman: Theories of Gentlemanly Education in England, 1660-1775*, George C. Brauer, Jr. Bookman Associates, New York, 1959. 252 pp. \$5.00.

"It's a stupid name enough!" Humpty Dumpty interrupted impatiently.  
"What does it mean?"

The concept of the 16th century English gentleman has already been examined by Ruth Kelso, and the gentleman of the early seventeenth century by W. L. Ustick. Brauer's book is an attempt to bring the account down to about the time of the publication of Lord Chesterfield's letters to his son in 1774. A large part of the book consists of direct quotations from a wide variety of contemporary writers—some of them entertaining, most of them interesting, and all of them valuable material for the specialist. Brauer's own writing is plain, unobtrusive and undistinguished. There is a useful bibliography and an adequate index.

Five cardinal qualities of the gentleman are included: virtue, public spirit, intellectual acquirements, worldly experience, and good breeding; to each of them is given a separate chapter. A sixth chapter deals with the place of travel in the education of the gentleman. Brauer has done a thorough job of research on the subject and gives us the views of not only the well-known spokesmen like Chesterfield, Shaftesbury, Swift, Addison, Steele, Fielding, Smollett, and Johnson, but also a host of less familiar writers.

The seventh and final chapter calls for a special comment. Rarely has a dust-jacket blurb on a scholarly book been as wildly off the mark as this one: "Many of the issues of the 18th century are very much alive today," it urges the reluctant reader. "The question of private *versus* public school education is debated by educators and parents alike . . ." Even the casual reader will find it difficult to connect this statement with the fact that there was, of course, no public education in England in the 18th century. A glance at the chapter headings (do blurb-writers read only chapter headings?) confirms that Chapter 7 is entitled: "Public Versus Private Education," but the chapter refers, as might be expected, to the controversy over the respective merits of a private tutor and a public (i.e. private, upper-class) school.

There appears to be some confusion in the book between the education of a gentleman as it was in the seventeenth and eighteenth centuries and his

education as some contemporary writers thought it *should* be. Brauer often writes as if the two were synonymous. For example, he collocates a number of opinions about desirable subjects for the gentleman to study, including Latin, Greek, French, Italian, mathematics, geography, history, rhetoric, philosophy, science, theology and law, and then concludes: "When the young gentleman's education was carried out with care and thoroughness . . . it usually comprehended the subjects which I have named. . . . The above program is . . . to be regarded in the light of a common denominator" (p. 76). This is a sad confusion of fact and opinion and is disastrously far from the truth.

Brauer stresses the primacy of the study of history in the education of the gentleman (pp. 76-80). This move probably stems from Brauer's own predilections than from any correspondence with the facts. He quite properly quotes several writers who praise the value of history as a study for gentlemen, but then goes on to jump from recommendation to realization by saying, "At the public schools they usually read the Roman and perhaps the Greek historians. At home or on the Continent under tutors, they received extensive instruction in history" (p. 80). In fact, very few public school boys of the eighteenth century ever got beyond the "gerund-grinding" stage of Latin and hence were unable to "read" Roman historians in any meaningful sense of the word, while the young men who enjoyed their education on the Continent had little or no time left for studies like history after their social and sexual commitments were discharged.

The major defect of this work is that it consists solely of an accumulation of inert knowledge: generalization is at a minimum and interpretation is virtually absent. Without wishing to enter the controversy over historicism, I must express personal reservations about this approach to history. For the specialist who is seeking the raw material of history this is an excellent source, but the fact that Brauer makes no attempt to *use* this material in a general or analytical way renders it largely useless for the general reader—except perhaps for the idle amusement to be derived from an occasional droll quotation. A prime example of this defect is that Brauer nowhere comes to grips with the problem of judging what qualities were essential in a gentleman. He mentions birth and conduct, for example: "It could not be denied that a man was in actual fact a gentleman if he possessed an ancient and honorable name. Critics insisted, however, that on an ideal plane his ancestry was much less important than his virtue—that without virtue he was at best a most imperfect gentleman" (p. 13). But was birth a sufficient condition for a gentleman or not? Was virtue also necessary? Was a most imperfect gentleman still a gentleman? Brauer does not say. He produces a host of quotations from people who had varying opinions, but there is no attempt to pull them together, to sift them, to weigh, to analyze, to interpret. It is all very well to substantiate the fact that Chesterfield had certain opinions upon how the gentleman should behave, but the reader can be forgiven for asking at the end of the book, "So what? What does it matter, anyway? What does it all *mean*?" Here is a painstaking attempt to find out the *how* and the *what* of history without ever asking the more interesting and important *why*. This concern with the past for its own sake is highly respectable in historical circles, but the professional historian's reluctance to generalize and his timidity about interpretation are largely responsible for the isolation of "scholarly" history (which is

read only by specialists) from the public (who read only "popular" history). It was not always thus, and for the deterioration in the breadth of influence of the historian we must largely blame non-interpretive history of the type that Brauer gives us.

PAUL NASH  
McGill University

*The Cultural Life of the New Nation, 1776-1830*, Russel Blaine Nye. Harper & Brothers, New York, 1960. 324 pp. \$5.00.

Professor Russel B. Nye of the English department of Michigan State University has packed an extraordinary amount of history material into the 300 pages of his new book, *The Cultural Life of the New Nation, 1776-1830*. This latest addition to Harper's New American Nation Series follows Louis B. Wright's similar study of the colonial period and is meant to draw together into one volume the country's cultural development during the first half-century of its existence as a nation. Mr. Nye's discussions range from generalities concerning American nationalism and romanticism to particulars about such institutions as the school and the church. Part I, subtitled "The Frame of American Enlightenment," opens with a thoughtful resumé of the nation's colonial heritage and then moves into a provocative chapter tracing "The Roots of an American Faith." Two chapters on American science close this section. The remaining two-thirds of the book is organized around the title "The Growth of an American Point of View" and includes two chapters each on society, education, and religion, with final chapters on literature and the arts.

As has been the case with most of his predecessors in this series, the author has had to rely almost entirely on secondary materials. Supplementing this literature, however, is an occasional reference to travelers' accounts, published journals, and other writings of contemporaries. Mr. Nye has a favorite scientist (Samuel Latham Mitchill) and a favorite man of letters (James Kirk Paulding), who are frequently called upon for comment. The author has read widely in the period and has put together a useful bibliography. But his heavy preference for older works, particularly in the chapters on education, may disappoint some of his readers. Wherever conflicting interpretations appear, he has presented a fair-minded evaluation of his own, although most of the interpretation is confined to the first few chapters of the book.

The author recognizes the hazards of his project in a brief but frank preface. "The complex, fugitive thing we call American culture cannot be captured in one volume," he writes, "and in the last analysis much of it simply defies exposition" (p. xii). To this reviewer the strength of Mr. Nye's book is to be found in those chapters in which he deals with general concepts of American cultural life. His first two chapters make a particularly strong opening. Here is portrayed the dilemma of the newly independent American, the man whose peculiar mode of existence finally gave to him a separate nationality. Having achieved political independence in the years immediately following 1776, the American had then to find a cultural independence to match. The scholarly interpretations of American nationalism (pp. 37-49) and sense of mission (pp. 50-53) provide an excellent theme for the examination of ideas and institutions which follow.

Unfortunately Mr. Nye too often departs from this theme in his analyses of society, education, the church, and other subjects found in Part II. To this reader the remainder of the book seemed to lack much of the emphasis on dynamic change and development promised in the first two chapters. Only in Chapter 10, "The Great Revival of American Faith," does change take the dominant role. Mr. Nye at times succumbs to the temptation of describing the main features of the period as though it was a half-century with fixed characteristics. This static approach makes sharp contrast with his practice of ending each chapter with a short section to point up the changes which had in fact taken place. This technique is most clearly seen in Chapter 7 on education. As a rule these concluding paragraphs are excellent capsules of thought which give the reader a sense of direction for the chapter missing in its earlier pages.

For a book covering as much ground as this Mr. Nye succeeded in getting his facts remarkably straight, at least as far as this reviewer could tell. Only the misplacement of Dummer Academy in Connecticut instead of Massachusetts can be charged up to the author. Those responsible for the manufacture of the book, however, come off somewhat less well. Without looking for errors, this reader found two lines transposed, two misspellings, and a mistaken first name, more miscues than Mr. Nye and the purchasers of his book deserve. The publishers are to be praised, however, for placing footnotes where they belong and allowing the author fifteen pages for a bibliography.

This generosity was costly, for the book's greatest disappointment is the total absence of a concluding chapter of any sort to emphasize the great progress realized from the colonial heritage so well described in Chapter 1. The fifteen years following the end of the War of 1812 receive much less attention than one would expect. Here was an opportunity for a strong conclusion, tying together the wealth of material in the middle chapters. Quite possibly the author was constrained from such an undertaking by page-conscious publishers and editors. But there should have been room for some sort of ending stronger than a few paragraphs on Romanticism in American art.

BENJAMIN W. LABAREE  
*Harvard University*

*Thomas Arnold*, T. W. Bamford. The Cresset Press, London, 1960. 232 pp.  
60 s. (\$6.00).

In the history of that peculiarly English institution known as the Public School, there are few, if any, names which stand out as prominently as that of Thomas Arnold, Headmaster of Rugby from 1828 to 1842. And in the history of English education in general there are few, if any, schoolmasters who have received so much publicity, admiration and adoration as Arnold of Rugby. Largely as a result of worshipping students an Arnoldian legend has grown which, in the main, has centered around Arnold's headmastership and his role in the transformation of the nineteenth century conception of Public School education. It seems that Arnold's biography has been an attempt to vindicate the Provost of Oriel's bold prophesy that Arnold would "change the face of education all through the public schools of England."

But Arnold was not merely the Headmaster of a famous school. He was a social and religious critic, and an astute observer of Victorian society. Yet

these aspects of Arnold's life have not received the same attention as his headmastership. In this respect, therefore, that is, in examining the full scope of Arnold's role in the social and religious ferment of the second quarter of the nineteenth century, T. W. Bamford's recent book is a welcome addition to the Arnold biography. *Thomas Arnold*, however, is a significant contribution not merely because it fills certain biographical gaps. It boldly scrutinizes Arnold's work as a headmaster and explodes certain myths associated with Arnold's name as a public school reformer.

After a very short account on the unknown pre-Rugby Arnold, and the events which led to his appointment as Headmaster at the early age of 33, Bamford places Arnold in the fray of social and political unrest which led to the famous Reform Bill of 1832. The reader is immediately introduced to the real Arnold, the liberal, and by the standards of the day, radical social reformer. The basic features of his social philosophy were progress and change expressed most clearly in a letter to A. P. Stanley as follows:

'My love for any place, or person, or institution, is exactly the measure of my desire to reform them' (p. 39)

Hence, we see him arguing vigorously for the amelioration of the plight of the laboring classes, exhorting the upper classes to take an active part in this process, and passionately supporting the Catholic claims of the people of Ireland to a share in government. We also get a clear picture of his social theory: that change must come about through parliamentary means, that the natural leaders of the country, viz., the upper classes and the Church, are the best fitted to bring it about, and that existing social stratification was not only just but practicable.

His early tracts on social questions introduced Arnold to the British public and the world. To some he was a zealous reformer, to others exasperating, to the majority controversial. These mixed feelings were heightened by the publicity he received as a result of his disciplinary methods at school, especially the use of the cane, his dealings with the trustees and the leaders of the village of Rugby, his campaign for the reform of the Church, and his merciless attack on Newman and the leaders of the Oxford Movement.

In all that he wrote or did, be it his efforts to eradicate vice at Rugby, or to reform the church, or discredit the Oxford Tractarians, he was moved by an unwavering religious belief in a Christian morality based on the teachings of Christ. His volleys were aimed against anything that, in his opinion, bred "moral wickedness." Newman's stress on ritual, the chants, the incense, and the monastic spirit did just that, and it revolted him.

To Arnold, moral wickedness was also a characteristic of children who were either born with it or developed it in the prevalent atmosphere of the public schools. He believed that through strict disciplinary measures, religious sermons and the study of the classics it could be eradicated, and that his goal of the moral Christian gentleman, the zealous, rightful leader of man, could be attained.

Bamford's treatment of Arnold's moral fanaticism is both scholarly and insightful. So is his treatment of the Wratislaw case over the interpretation of Lawrence Sheriff's will regarding the admission of local children.

Arnold died at the age of 47. His reputation as a Headmaster grew steadily.

Bamford reminds us, however, that "as a social thinker he was soon forgotten completely, while as a religious personality he is still remembered vaguely as an antagonist of Newman" (p. 174). The last three chapters of this book are accordingly devoted to an examination of the "Arnold legend," the validity of the claims made on Arnold's behalf concerning public school reform, his role in the social and religious spheres, and to a general character assessment.

Bamford emphasizes the tremendous power and force of Arnold's personality and his influence on the "sixth formers," the "Bearded Sages" as they were called at the university, some of whom grew up before their time and never recovered! He has high praise concerning Arnold's improvement of certain conditions at Rugby and his raising of professional standards among the Public School teachers. But he carefully points out that Arnold's insistence on the zealous clergyman-master as "a curator of souls," the powers which he delegated to the "sixth formers," and the religious fervor among the students, "have gone altogether," while the reforms now regarded as worthwhile, i.e., reduction of flogging, courtesy among boys, and the expansion of the curriculum, "had nothing to do with Arnold." Yet Bamford realizes that though Arnold may not have been directly responsible for most of the reforms credited to him, the fact that people labored towards improvement believing that they were following in his footsteps, was enough. In his words, "It matters little if gods are false, providing that good things are done in their name" (p. 190).

As a social and religious thinker, Arnold may not have been very original, but "he gave a new impetus to old ideas and injected fervour into many." Arnold's work is summarized as follows:

If he had been narrower he would have been more successful, for he would have offended fewer people. As it was no one could have been more omnivorous, and what he ate was digested well so that the resultant synthesis commands admiration. (p. 206)

Biography as a form of historical writing on educational matters has been quite popular in England, and the nineteenth century seems to be a fertile ground for such an enterprise. If properly done, it has the advantage of presenting the full scope of a man's thoughts and activities and of unraveling the secrets and complexities of a man's personality. Bamford has succeeded admirably in this medium of writing "the most delicate and humane of all the branches of the art of writing," as Lytton Strachey called it. *Thomas Arnold* sheds light not only on the famous Headmaster of Rugby but also on the social and intellectual history of early Victorian England.

ANDREAS M. KAZAMIAS  
Oberlin College

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OSCAR HANDLIN is Professor of History at Harvard University. Devoting his studies mainly to the social history of the United States, he has published numerous works of acclaim, including *Boston's Immigrants* (1941), which was awarded the Dunning Prize of the American Historical Association, and *The Uprooted* (1951), which was given the Pulitzer Prize in history. Some of his more recent works include *Race and Nationality in American Life* (1957), *Readings in American History* (1957), *Al Smith and His America* (1958), and *Immigration as a Factor in American History* (1959). Professor Handlin's articles on both educational and historical subjects have appeared in the *Atlantic Monthly* and the *New York Times Magazine*. In addition to his regular teaching duties, he is presently Director of the Center for the Study of the History of Liberty in America at Harvard University.

FREDERICK RUDOLPH is Professor of History at Williams College and Visiting Lecturer on History and Education at Harvard University for 1960 and 1961. He is author of *Mark Hopkins and the Log* (1956), a study in the history of Williams College. Professor Rudolph's major interests are in the field of higher education, and he is presently writing a history of higher education in the United States.

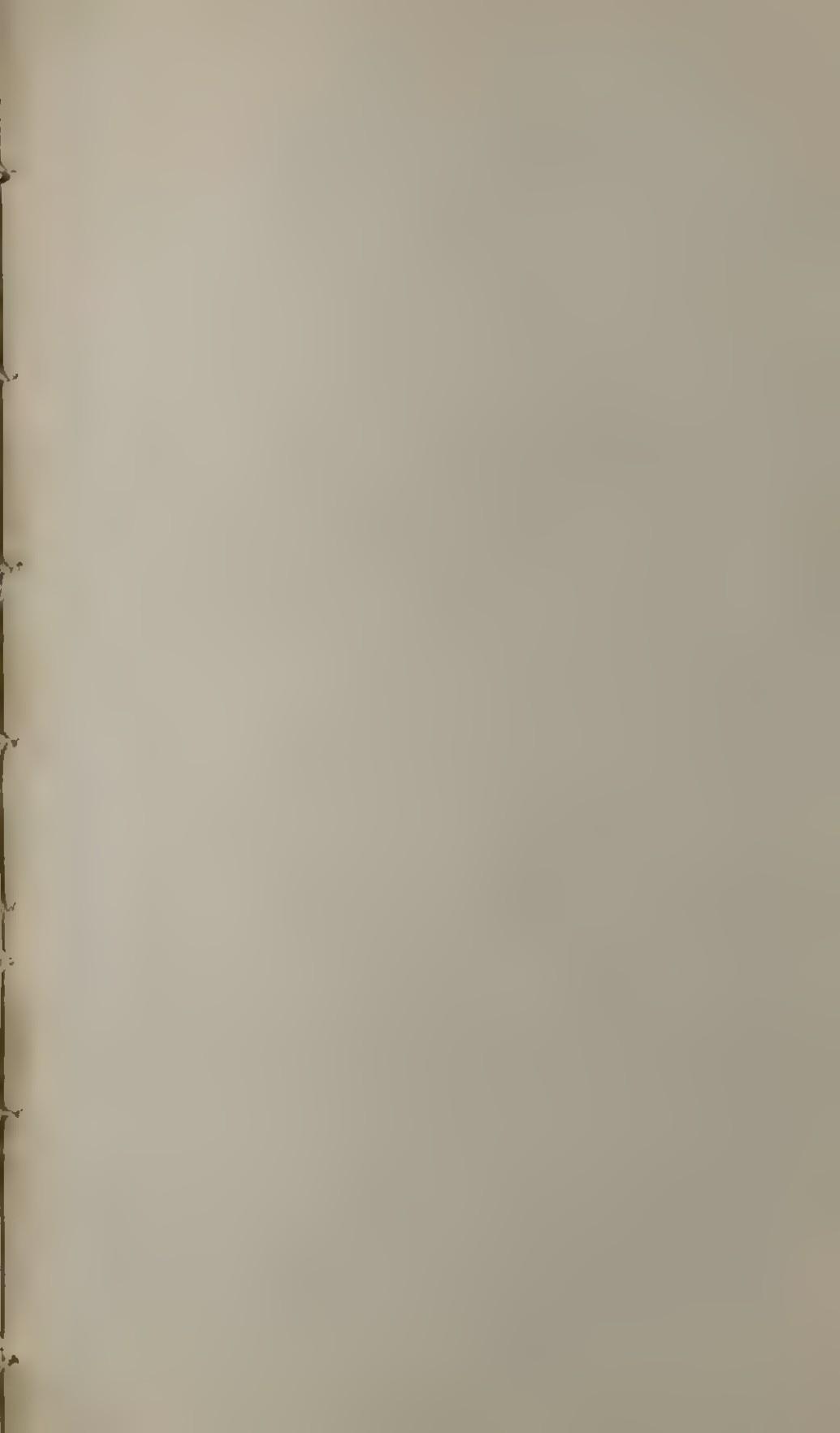
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7 JUL 1981

# HARVARD EDUCATIONAL REVIEW



## A SYMPOSIUM:

*The Computer and Educational Research*

HOWARD F. HIJELM

JOHN C. FLANAGAN

ALBERT E. BEATON, JR.

WILLIAM W. COOLEY

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## Information for Contributors

The *Harvard Educational Review* is a professional quarterly for the publication of articles dealing with concerns of education. These concerns are not merely the problems of schools; they are also those of the society which brings schools into existence. The *Review* therefore welcomes contributions, not only by scholars and research workers in education, but also by persons who are working in related disciplines and professions.

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# The Computer and Educational Research: A Symposium

The following four papers were presented at the symposium: "Data Processing Machines and Educational Research" on December 29, 1960. The occasion was the annual meeting of The American Association for the Advancement of Science. The primary purpose of the symposium was to encourage greater utilization of recent developments in data processing technology in the field of educational research. The papers are not highly technical in nature and therefore might serve also as a means of informing laymen of the types of problems for which the computer and related devices are being applied.

In the first paper, Hjelm considers two ways in which the Office of Education is expecting to utilize these machines. He first considers how a national statistical program in education could be set up by use of a basic data bank. Once such a bank was set up it would be possible to derive answers to any number of questions from the basic data available. Such a program would avoid large duplication of effort on the part of national, state and local agencies. His second concern is for a national educational research information service. The problem here is one of abstracting the educational literature in a way in which research studies could be easily accessible. Information retrieval by machines will become even more crucial as educational research expands during the next decade.

In the second paper, Beaton considers some of the problems of establishing and running a university data processing center. This is very relevant to educational research workers because in general they will be having to deal with such centers as they utilize computers in their research. It is therefore important that they be aware of the advantages and disadvantages of various forms of center organization and computer access.

The Flanagan paper considers some of the problems and prospects of large scale research projects. With the advent of the digital computer and other data processing machines, projects of the magnitude of Project TALENT are now possible. Flanagan describes the functions which various modern equipment play in the design, execution and analysis of large scale projects.

In the final paper, Cooley outlines several other ways in which the com-

puter is and will continue to modify educational research methodology. One especially promising area seems to be multivariate analysis. He concludes with a brief discussion of the problem of informing other research workers in education about the techniques of modern data processing.

Perhaps it would be helpful to present in this introduction a few basic references on computers for the interested reader. A brief but highly informative introduction is Green's *An Introduction to Digital Computing*. This may be obtained by writing the Lincoln Laboratory, M.I.T., Lexington Mass. (Monograph 58 G-001).

Two other valuable introductions to the digital computer are: McCracken, D. L. *Digital Computer Programming*. New York: Wiley & Sons, 1957.  
Nett, Roger and Hetzler, Stanley. *An Introduction to Electronic Data Processing*. Glencoe, Illinois: The Free Press, 1959.

# Applications of Modern Data Processing at the Office of Education

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The Office of Education was established by Congress in 1867 as a result of the efforts of Henry Barnard and many others. Prior to that time there had been no federal attempt to collect educational statistics other than in a very limited manner as a part of the decennial census. The purpose of the Office of Education as stated in the enabling act is to collect statistics and facts showing the condition and progress of education in the several states and territories and to diffuse such information so as to aid the organization and management of schools and school systems; to assist in teaching as shall aid the people of the United States in the establishment and maintenance of an efficient school system and otherwise to promote the cause of education throughout the country.

The Office of Education has expanded and developed as the nation's collector and disseminator of educational information since its establishment in 1867. It is the nation's leading depository of educational information. With the strategic role of education in our society today, the need for comprehensive and extensive educational information is clear. The need for a greatly expanded repository of educational information has been proposed by many groups. The 1955 Commission on Information

Relations, the White House Conference on Education, the President's Committee on Education Beyond the High School, and the 1960 Advisory Committee of Users of Educational Statistics have all stressed the importance of improving the collection and dissemination of educational information.

Advances in automatic data processing and information storage and retrieval have affected the scope and depth of coverage which is feasible in a nationwide system of educational information. This paper presents implications for a national statistical program in education and a national educational research information service.

### *A National Statistical Program in Education*

Electronic data processing is changing our thinking in regard to the comprehensiveness possible in a national statistical program in education. Derived items of information have been traditionally obtained through the administration of questionnaires. It is now possible to think of gathering basic data directly from schools, colleges, and other educational agencies. The derived information could be calculated quickly and accurately from the stored bank of basic items at the collection center.

In general, a derived item calls on the respondent to engage in some manipulation of the data. A basic item is typically elemental and does not involve cross-classification, combination of groups, or computation. A student's birthdate, a student's sex, and a teacher's earned degrees are examples of basic items of data. The number of pupils eighteen years of age, the number of girls in the senior class, and the number of teachers having master's degrees are examples of derived items. In the fiscal year 1960, the Office of Education used approximately 8,000 different queries in its questionnaires. Answers to almost all of the 8,000 questions could have been derived from responses to about 800 basic items.

Each year the Office of Education issues a report entitled "Higher Education Planning and Management Data." This report is designed to provide normative data useful for budget making and other planning activities of college and university administrators. The largest portion of the report is devoted to salaries of faculty members. The data are obtained by requesting business managers of higher educational institutions to complete a questionnaire consisting of 264 entries. One hundred and eighty-four of these entries require the respondents to classify basic items of data and perform some computations with the data. Twenty-one tables are produced on salaries by stratifying the data by control of institution, region, type of institution, and size of enrollment.

The same information regarding the salaries could be obtained from three basic items on individual faculty members. The three items are rank, salary, and months employed. All of the derived information, obtained by

asking the 264 queries in the questionnaire, could be economically and reliably derived internally in an electronic computer at the collection center.

In asking for derived items of information, the number of possible cross-classifications of the data are seriously limited. If basic items of information are being requested, additional items, such as age, sex, and highest earned degree, could easily be obtained. These additional items of information would make possible many additional cross-classifications. It would be possible to show, for example, relationships between salary and sex, salary and age, salary and highest earned degree, age and highest earned degree, age and rank, etc. Relationships involving more than two variables could also be obtained.

The work-load in responding to the queries for basic items is of a completely different nature from that of responding to the questionnaire requesting derived data. The procuring of basic items from the files is generally of a simpler level task than that involved in responding to queries for derived data. Many times the derived data are asked for in classifications and categories which do not correspond to the records kept by the local institutions. Thus, there is usually the problem of reclassifying the data for the special questionnaire to which one is responding. This usually results in a delay in responding to a questionnaire. Responding to questionnaires requiring derived items of information tends to decrease the reliability of the data received and possibly, due to a misunderstanding of the items, to a decrease in its validity.

If local institutions have automatic data processing centers, punched cards or tapes of basic information could be economically and quickly reproduced at these centers and forwarded to the Office of Education. Approximately 500 school districts use automatic data processing equipment. Of these, approximately 400 have their own equipment; the remainder use equipment owned by cities, counties, and industry, or they use a service bureau. The equipment used by local districts ranges from a simple basic installation costing about \$4,000 per year up to a small in-line-computer system such as the RAMAC 305 which rents for \$48,000 per year.

Currently, thirty-eight State educational agencies have installations of automatic data processing equipment. Twenty-seven of these installations have been made recently under the auspices of the Title X Program, the statistical services title of the National Defense Education Act of 1958. It is anticipated that at least eight more states will complete installations in fiscal year 1961. All of the installations to date are using IBM equipment except one which uses a Remington Rand Solid State 90 system. The rental prices range from \$10,000 to \$120,000 per year for these installations, with a median of approximately \$25,000 per year.

Approximately 800 institutions of higher learning have their own equip-

ment for processing student records; many others use service bureau facilities. It is estimated that machine procedures are economically feasible in colleges and universities with enrollments of 500 students or more. The preceding statements show that great strides are being made in the field of education in the adoption of automatic data processing.

The validity of the items of information stored in the bank are dependent upon the universal acceptance and usage of standardized definitions of the items. How do we define a full-time college student? How do we distinguish between capital and current expenses? One would think that a common definition for a student in attendance could easily be agreed upon. Yet, one state considers an excused student as being in attendance.

The Office of Education with the cooperation of professional educators in the field has been working on the problem of establishing standard definitions of educational terms. Four handbooks have been prepared. They are "The Common Core of State Educational Information,"<sup>1</sup> "Financial Accounting for Local and State School Systems,"<sup>2</sup> "Property Accounting for Local and State School Systems,"<sup>3</sup> and "Financial Accounting for School Activities."<sup>4</sup> The Title X Program, the statistical services title of the National Defense Education Act of 1958, has been active in working with educators to adopt the use of these handbooks. The American Association of Collegiate Registrars and Admissions Officers has a committee currently working on the problem of defining basic terms for use with college student accounting. Increased efforts need to be made in this area of establishing and adopting common definitions of educational terms.

The implications of a national bank of basic items of educational information are tremendous and exciting. Assuming a continuous flow of basic items from their originating sources in the field to the Office of Education, the fundamental facts traditionally gathered by educators in the various specialties through questionnaires could be obtained by programming his request from the bank. The basic items of information could be analyzed in greater depth than previously possible through gathered derived items of information. Special studies could be programmed and run off on the electronic computer at any time.

<sup>1</sup> Office of Education, *The Common Core of State Educational Information*, State Educational Records and Reports Series: Handbook I, Bulletin 1953, No. 8. U. S. Department of Health, Education, and Welfare, 1953. 116 p.

<sup>2</sup> Office of Education, *Financial Accounting for Local and State School Systems*, State Educational Records and Reports Series: Handbook II, Bulletin 1957, No. 4. U. S. Department of Health, Education, and Welfare, 1957. 235 p.

<sup>3</sup> Office of Education, *Property Accounting for Local and State School Systems*, State Educational Records and Reports Series: Handbook III, Bulletin 1959, No. 22. U. S. Department of Health, Education, and Welfare, 1959. 194 p.

<sup>4</sup> Office of Education, *Financial Accounting for School Activities*, State Educational Records and Reports, Bulletin 1959, No. 21. U. S. Department of Health, Education, and Welfare, 1959. 109 p.

Another potential implication of a national bank of basic items of educational information is that an educator could follow through on hunches and leads in regard to potential or existing problem areas in education. An exploratory investigation could be programmed and a sample drawn from the bank and analyzed. From this exploratory study, which could be done in a matter of minutes, enough valid and reliable information might be obtained to point to the need for a more extensive and penetrating investigation. These investigations growing out of the exploratory studies would probably involve the use of questionnaires and interviews in the field. The implications of this procedure are of inestimable value to the field of education.

#### *A National Educational Research Information Service*

In thinking of a national system of educational information, attention must not be limited to collecting statistics. Widespread dissemination of research activities and findings in education and its related fields is essential for an optimum national program of educational research and for reducing the lag between knowledge and practice in the field of education. Researchers need this information in order to be able to integrate their own research activities with the body of knowledge as it now exists and also not to unknowingly duplicate investigations. Others need this information in order to make sound instructional, administrative, and legislative decisions.

The volume of literature is now of such a magnitude that it is impossible for an individual through his own reading to stay abreast of his area of specialization, much less to be aware of studies in related areas which have significance to his own. As an aid in locating articles in the literature, one usually goes to bibliographies such as *Education Index*, *Psychological Abstracts*, *Review of Educational Research*, *Encyclopedia of Educational Research*, and *Dissertation Abstracts*. Many valuable man-hours are spent in searching these reference works without the assurance of coming up with a comprehensive list of useful citations. The number of false retrievals will also tend to be many.

The adequacy of the standard bibliographic reference works is often questioned. Maurice F. Tauber and Oliver L. Lilley, School of Library Service, Columbia University, conducted an investigation sponsored by the Title VII Program, the new educational media title of the National Defense Education Act of 1958, in which they attempted to assess the adequacy of standard bibliographic reference sources in regard to the area of new educational media.<sup>5</sup> The testing of current sources of information

<sup>5</sup> Tauber, Maurice F., and Lilley, Oliver L., *Feasibility Study Regarding the Establishment of an Educational Media Research Information Service*, School of Library Service, Columbia University, 1960. 235 p.

was done through the identification and locating of a sample of research studies included in a summary of research prepared for the *Encyclopedia of Educational Research* by William H. Allen, editor of the *Audio-Visual Communication Review*. They searched 25 standard bibliographic references for the research studies.

Tauber and Lilley were unable to locate 17 per cent of the research studies. Only 30 per cent of the studies were found in the *Education Index*. Thirty-eight per cent of them were located in the *Psychological Abstracts*. The *Education Index* was the best in regard to articles in periodicals, whereas, the *Psychological Abstracts* was the best in regard to monographs. In evaluating the above percentages, the fact that they knew the individual studies for which they were searching is significant. In attempting to locate unknown studies, the matching of the vocabulary of the searcher with that of the indexer makes it even more difficult to obtain the desired references. Clearly, relying only on the standard bibliographic references is inadequate.

There is an awareness that current services are not sufficient in meeting the nation's needs in regard to abstracting, storing, and retrieving educational research information. In response to this need, the Office of Education through its Division of Statistical and Research Services is currently engrossed in preparations for the establishment of a national educational research information service. Plans are to negotiate a contract with a suitable agency to develop a system and to have them check it out.

The system would contain abstracts of on-going and completed research of significance to education. Immediate acquisition would be made of research activities sponsored by various government agencies. Much of this research is reported in unpublished form and is difficult to locate using standard bibliographic references. Other research would be added to its store as the service develops.

The service would possibly include three modes of dissemination: a periodical index would be published; individual educators would receive periodically abstracts of new research activities related to their specialized areas of interest; an individual request plan would be put into operation.

The establishment of an educational research information service by the Office of Education will assist it in fulfilling its role as the national center for the collection and dissemination of information of significance to education. The need for such a service exists and activities have been initiated by the Office of Education toward its establishment.

Education in the United States is a twenty-five billion dollar a year operation.<sup>6</sup> An enterprise of this magnitude requires substantial amounts of up-to-date, reliable, and valid statistics and research findings. The advent

<sup>6</sup> Estimate for 1959-60 school year for elementary, secondary, and higher education, both public and private, by the Reference, Estimates, and Projections Section, Educational Statistics Branch, Office of Education.

of automatic data processing and the electronic computer together with advances in information storage and retrieval make possible a greatly expanded program of gathering and disseminating educational information.

# University Data Processing Centers

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Since the dawn of the era of automatically sequenced digital computers fifteen years ago, university research has undergone a major change. Many problems which formerly had to be neglected because of excessive calculation can now be done routinely. A new generation of problems has been conceived and is under dual attack. One method is to use extensions and refinements of old techniques, such as analytic rotation in factor analysis. The other method is to develop entirely new approaches, such as simulation of social groups, simulation of learning processes, and automatic classroom assignment. Essentially, the computing machine has lifted tremendous barriers of time, clerical work, and error.

The power of the computer has attracted scholars from all university departments. The Classics Department in one university has used the computer in the metric analysis of Greek poetry, and a History Department has examined hypotheses about old shipping records. Business Schools, Medical Schools, and Schools of Education are major computer users today. Yet the use of computers is just beginning, and the end of the mushrooming is nowhere in sight.

The growth of computing in universities has not been easy. One obvious problem is the very heavy expense of computing machinery. A business firm can argue that a computer will save money. For example, a payroll, once programed, will run week after week for years at very low cost when compared to hundreds of clerks doing the same task. But in a university

the hundreds of clerks never existed for research purposes. Fiscally, the machine is solely an expenditure. The university's consolation is a marked improvement in research, and pure research is not a sound short-run economic venture.

Over a hundred universities have accepted the challenge of providing computing facilities for faculty and students. There has been no set mold for computing laboratories; indeed, the laboratories are surprisingly dissimilar. Some universities have several computer installations and others have one central computer. Some are offshoots of the Mathematics Department, others of the Economics Department or the Business School. Some are totally subsidized and others are expected to pay their own way. Some do processing of data for commercial firms and others do only unsponsored research.

Even in the choice of machine manufacturer there is considerable variation. According to the *Fourth Annual Survey of University Computing Centers*,<sup>1</sup> which was published by the University of Rochester, twenty different computer types are used by the hundred centers which reported. Nearly every computer manufacturer is represented. The most popular machine is still the basic IBM 650 which is used by twenty-eight per cent of the sample. Fifty-one per cent use 650's when the augmented and tape 650's are included. One major advantage of the IBM 650 is that universities can cooperate in program sharing on a grand scale. IBM's educational discount of sixty per cent off of the commercial rental also helps to make the machine particularly attractive. However, the 650 is now an almost obsolete computer and it is safe to say that most schools will soon switch to the IBM 1620 card systems, to IBM 704's and 709's which are available to universities at very reasonable rates, and to the wares of other manufacturers who now present very attractive alternatives. Twenty-five per cent of the universities in the sample had machines in the small-size class such as the Royal McBee LGP-30, Bendix G-15, IBM 610, and the Burroughs E101. The technological advances in computer components and the increase in demand for computer time should change the university computing machine representation in a relatively short period of time.

The differences in computing laboratories reflect the many different variables in their make-up. Some centers are adjuncts to some specific department, but more centers are interdepartmentally sponsored. The interdepartmental center takes advantage of the economy of size which demonstrates that a large machine is much cheaper for a problem of a given size. On the other hand, the smaller departmental machines give a research worker ready access to a machine with a minimum of bureaucracy. Hope-

<sup>1</sup> *Fourth Annual Survey of University Computing Centers, Report No. 8, University of Rochester Computing Center, July, 1960.*

fully, the answer to this dilemma lies in the time-shared computer of the future.

The financial structure of a computing center sets the pattern of computer usage for the university. Some universities have free computer usage for all faculty and staff while other schools have a relatively high fee charged for each hour of machine time and for each staff service. It is fairly obvious that the first system is preferable, but who is going to pay the bills? Some universities have received substantial support from the National Science Foundation for the purchase of computing machinery. Others use sundry research grants, university funds, and commercial sales of computer time. The *Report on A Conference of University Computing Center Directors*<sup>2</sup> makes the following recommendation on financing:

A university or college should be able to support the basic operating costs of its computing center from its operating funds, though it may need special aid for the initial cost. Under certain circumstances it may be advisable to sell 'second-shift' time to research projects (or nearby industrial organizations) which can afford to pay; however, this sold time should never be more than half the total available computing time and it must never interfere with the educational and unsponsored research activities of the center. Some university computing centers recover a portion of their operating costs from the overhead which is part of the budget of all governmentally and industrially supported research projects at the university. Others obtain partial support from long-term grants made directly for the center. In these two cases the center makes no direct charge for any machine time used by any university faculty member, student or research project and no time is granted to any outside organization.

Whatever the university policy for financing it, the computer is now a necessary part of research. Even though the price per hour of machine time seems high, the cost for work accomplished is low. In fact, a research person today can hardly afford not to use computing equipment. The power of the machine takes much clerical and mechanical work away from the researcher, leaving him more time to improve his research design, his theoretical work, and his experimental data. It is surely more extravagant and more costly not to take advantage of the computing machine.

Most computing centers today are run on an "open shop" basis. An "open shop" is a center which requires a researcher to do his own programming, coding, and possibly even his own machine operating. A totally "closed shop" would be one in which all the programing and machine operating was done by the center's own professional group. Anyone who has programmed realizes the advantages of encouraging the scholar to

<sup>2</sup>American Mathematical Society, *Report On A Conference of University Computing Center Directors*. A Report to the National Science Foundation, August, 1960.

program. There is no better way to have him see the power of the machine and to open his eyes to new research approaches. On the other hand, is it purposeful to have every scholar in a university spend large amounts of time in debugging computer programs? This author believes that while it is certainly important to encourage researchers to program for themselves, there should be a staff in the university for programming for those who have need of it.

Optimum usage of a computing center requires some advanced planning. A research person should feel free to approach the center, preferably before the data are collected, for information about center policy. A center may have preferred methods of coding experimental results which must be known in advance. Since programming is a slow, tedious process, that can easily take weeks or months, depending on the problem, it may be possible to have the program prepared while the data are collected. Furthermore, ambiguities in research design and superfluous data collection can often be remedied by advance planning, and costs and long delays may be reduced.

If the center has an already written program for data analysis, there is a considerable saving in the cost of programming. Most computer libraries have routines for such common statistical techniques as correlation, regression and factor analysis. It is wise to check the library to see if useful programs exist. However, since few programs are thoroughly documented and checked out before release, some allowance must be made for checking library routines. If possible, this should be done concurrently with the data collection.

Computer results must be checked carefully. Granted, machine errors seem very few when compared to a desk calculator operation, but they still occur occasionally. It is far more likely that an error is attributable to an error in the program. Minor program errors are difficult to find, with the result that incorrect output may be returned to a research worker. Numerical checks should be inserted in the program whenever possible.

In any service work there are problems in pleasing the persons who are served. There are still people who believe that the computer is a little black box that will think hard and solve all their problems. There is no better way to convince them of the weaknesses of computers than to teach them how to program. Another problem is time: the computing center is very often open all twenty-four hours, but still cannot get its work done. The problem of assigning priorities is very ticklish. (In the end it is usually the friends of the machine operator who win the machine anyway.) Another problem involves the program library. It is very difficult to get programmers to document their work—especially when they are researchers, not professional programmers. Even if a program has a write-up there is no guarantee that it will actually work when put to use.

The future of computing in universities looks very good at this point. Nearly all major colleges and universities have machines and are looking ahead to new machines to help meet the increased demand. Most universities have heavily subscribed courses in computing for undergraduate and graduate students. In short, the computing center has become accepted as a very important part of the university.

There are still many problems left for the computer center to solve, for example, the queuing problem at a large machine. As machines have grown larger they have grown much less expensive per unit of computation. On the other hand, they have grown more careless with the time of the individual programer. Typically, a programer, while correcting his program has to wait so that all other problems of the same general type can be run as a batch. Yet, if a university rejects a large machine in favor of several smaller machines, the costs go up and the problems which can be attacked are restricted.

The answer to this difficulty seems to be in the direction of the time-shared computer with remote input-output devices. Ideally, the system allows consoles or other input-output devices in several places. Programmers, when debugging a program, got to an input station nearby and remotely operate the major machine. There can be several persons debugging at the same time, and a long problem waiting in the machine memory for the leftover microseconds. The time is saved by not holding up the computer when a programer is wondering what to try next, not waiting for the operator to change tapes, and by completely buffering the slow input-output stations. There may still be queuing and priority problems, but these should be minimized by this maximal use of computer time.

Another problem which besets computing today may be termed "the ethics of computing." Computing center personnel realize that the computer can give a halo effect to bad data. Computer results may be meaningless because of rounding error, unfulfilled assumptions, or random significance. Performing a large number of arithmetic operations on a set of data will not make meaningful results if the data were of doubtful validity to begin with. What can be done to avoid this?

The subroutines which are written in the future should be carefully constructed to protect the relatively naive user from blundering. Perhaps a statistical program should compute and examine the frequency distribution of the input data if the assumption of normality is to be introduced later. Perhaps the new programs should give to the researcher a graphical representation of his data. Perhaps compilers and computer hardware in the future should be built with automatic means of keeping track of rounding error. In other words, it is important that the computer improves, as well as increases, research.

Computers have already had a major effect on research work in both physical and social sciences. As yet there has been little stabilization in computer methods, university policy, and computer facilities. However, many research persons have already made major advances in their areas of concentration through use of existing facilities. Computing centers are now probing for ways to make computer usage easier for researchers and to improve the quality of work performed. There is no way of knowing where this revolution in scientific methods will lead.

# Data Processing in Large-Scale Research Projects

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To introduce this discussion of data processing in large-scale research projects, it seems appropriate to review data processing methods used in large-scale projects fifteen or twenty years ago as compared with currently available methods.

In 1940 the introduction of the National Teacher Examination Program involved the scoring of thousands of tests from a large number of testing centers all over the United States. In the one-day examining program each candidate recorded answers on about twelve tests on the newly developed IBM answer sheets. This sheet permitted answers for as many as 150 five-choice items to be marked on each side of the sheet.

Scores from a single test were obtained at the rate of 300 to 400 scores an hour. The results from these answer sheets were manually collated by recording them on lists as they were being scored. Cards were punched from these lists and the results were returned to candidates and superintendents in the form of punched-card profiles. Using the cards it was possible to carry out a number of studies involving intercorrelations of scores and other variables reported by the teachers such as courses taken,

years of experience teaching, etc. This program cost about thirty cents per score reported.

In 1945 under the auspices of the Aviation Psychology Program in the U. S. Army Air Forces each aviation cadet was given a battery of tests as a basis for assignment to one of three types of aircrew training; pilot, bombardier, or navigator. The battery included fourteen multiple-choice tests. The answers to these tests were recorded on standard IBM answer sheets. In addition there were six psychomotor apparatus tests for which the scores were recorded on mark-sensing cards. Cards were punched manually with a key punch to include the fourteen test scores plus identifying information and the data on the mark-sensing cards were converted to appropriate punched holes in the cards. These data were reproduced into the card containing the rest of the scores.

In the months that followed this initial processing, rosters were received from the various types of training schools, including pre-flight, primary, basic, and advanced flight training, indicating whether the individual cadet had passed or failed a course and the grades he received. The cadet's identification number was used to collate these cards with the original test-score cards, and the training school record was added.

Many problems were encountered in processing these data and doing special analysis of experimental tests because of the difficulty of getting all of the desired information on to one 80-column card. Serious problems were introduced if an attempt was made to compare data on one card with that on another. It required a relatively large staff and a substantial amount of electrical tabulating machine equipment to process two or three hundred thousand cadet records per year. It is believed that in this program the complete data processing cost did not exceed fifteen cents per score.

In 1957 a large-scale, long-range educational research program known as Project TALENT was initiated.<sup>1</sup> This project involved two days of testing for all the students in a sample of five per cent of the nation's schools. These 1,853 high schools included approximately 450,000 students from all parts of the country. The testing was done in March and April of 1960, and the processing of the data included a number of important improvements over data processing in the earlier projects mentioned above. The students recorded their answers for aptitude, achievement, information, and answers to questions regarding interests, personal characteristics, and biographical data on five specially printed answer sheets. These answer sheets contained many more answer spaces than the previously available answer sheets. These were scored on the Electronic Scoring Machine developed by Dr. E. F. Lindquist at the Measurement Research Center at the State

<sup>1</sup> Flanagan, J. C. et al. *Designing the Study*. Project TALENT Monograph Series, Monograph No. 1. (Washington, D. C.: Cooperative Research Program, U. S. Office of Education, 1960.)

University of Iowa. This machine was able to obtain 52 scores from two of the answer sheets at the rate of about 65,000 scores per hour. Another important new piece of equipment developed by Dr. Lindquist, the Document Reader, made it possible to punch answers to more than 700 questions in terms of choices selected on the remaining three answer sheets. Thus, all of the students' responses were scored and punched directly from the answer sheets marked by the students. Only a small amount of manual checking by clerks on answer sheets was required when the automatic check did not indicate a satisfactory score. The manual operations of preparing lists of scores and responses and key-punching and verifying were all eliminated by the new procedures. An additional important new feature of the Project TALENT data processing procedures is that by transferring the data from cards to magnetic tape the previous restriction on making comparisons only with an 80 column set of data is eliminated. Another important feature is the ease and speed with which it is possible to change addresses, and to add the data expected from the one, five, ten, and twenty year follow-up studies.

In reviewing modern procedures for data processing, a chronological discussion of the various aspects of carrying out large-scale research projects will be followed. These aspects include: (1) planning the project; (2) collecting the data and transferring it to magnetic tape; (3) editing, organizing and carrying out preliminary tabulations of the data; (4) developing and using computational programs; (5) reporting results of tabulations or analyses; (6) dealing with special problems such as the addition of periodic observations regarding the members of the original sample.

Planning is important for any research project, but a large-scale study demands much more systematic and detailed preparation. Not only is it necessary to define the objectives clearly and to prepare comprehensive lists of the data being collected, as well as the various steps to be followed in the analysis and reporting, but it is also necessary, where substantial expenditures are involved, to carry out as complete a pilot study as possible. Also, in planning a study involving large-scale data processing, it is essential that in addition to the usual research advisers and consultants, experts in data processing be consulted early. In carrying out the pilot study most benefit will be derived if the study is designed to parallel the main study quite closely. Plans for the project should also include the other five aspects listed above.

As indicated in the review and comparison of data-processing methods, there has been tremendous improvement in procedures for collecting the original data. New methods require the individuals supplying the data to precode and record their answers in such a way that they can be automatically transferred to IBM cards or on to magnetic tape. The transfer of these data is accomplished by the use of rapid photo-electric scanning devices or

through the reproduction of the image of the data sheet on to magnetic tape.

The Document Reader developed by Dr. Lindquist is probably the most efficient photo-electric scanning device available. It will scan answer sheets and reproduce as many as 160 items of information in an 80-column IBM card at speeds up to 6,000 cards an hour. The FOSDIC (Film Optical Sensing Device for Input to Computers) procedure used by the U. S. Bureau of the Census microfilms a similar position-coded data sheet and transfers the microfilm image directly to magnetic tape. It seems likely that a direct answer-sheet-to-magnetic-tape procedure will prove most efficient for psychological and educational research projects in which students record answers to large numbers of questions on answer sheets.

One of the problems in developing an ideal machine for this type of data transfer is the inclusion of some automatic editing procedures so that intended answers which are only lightly marked are picked up, and stray marks and erasures are ignored. It seems likely that efficient data collection and transfer procedures can reduce the cost of getting usable data on to the computer tapes to only about one or two per cent of the costs involved in this part of the manual data processing methods.

An important by-product of these new procedures of transferring responses to tape is the simplicity and efficiency of obtaining test scores from these responses using the large, general purpose computer. Using these item responses the large computers can obtain the desired scores economically as a part of the editing and organizing of the data, thus eliminating the need for a special scoring machine. In many instances it is most economical to organize the data by city, school, grade, or some other basic categories before proceeding with the computations and analyses. Also, it is usually desirable to check to make sure that only valid data have been recorded on the tape and that other simple checks have been carried out to insure that the machine is working with usable data.

At this stage it is also likely to be useful to obtain preliminary tabulations to provide descriptive statistics regarding the main aspects of the data. One of the valuable features of some of the new computers such as the IBM 7070 is the availability of automatic priority processing. In the work on card-to-tape conversion for Project TALENT excellent use is being made of this feature. The essence of automatic priority processing lies in the interaction between mechanical units such as card readers and the electronic units of the computer itself. Since the input and output equipment in most computers is slow in speed compared to the electronic computation speeds, the computer might be used very inefficiently during input and output processes.

Automatic priority processing makes it possible to interrupt the main

program being performed by the computer at a point when, and only when, the optimum time has arrived for giving an input or output command. When the main program is interrupted in this way, the computer turns to a short priority program (such as a card-to-tape routine) to carry out the small amount of computation or data manipulation required at this point. As soon as this short priority program has been completed, the computer returns immediately to the main program and proceeds to work on this main program until there is indication that the optimum time has arrived for reading a new card or for performing one of the other short priority operations. Thus, economical use is made of the computer permitting it to operate on the main program most of the time. When it is interrupted for a short priority program, the main program remains in exactly the same status until the short priority program operation has been completed at which time the computer resumes operation on the main program at the precise point where it was interrupted.

A priority program of this type was developed by Mr. Glenn Roudabush, who is responsible for the data processing of the Project TALENT information at the Computation Center at the University of Pittsburgh. He has set up a card-to-tape priority program in conjunction with the main operation of the computer in sorting and merging the data. In effect, it may be said that automatic priority processing permits the simultaneous operation of two programs. The main routine, which in this case is sorting and merging, can be carried out at very close to optimum speed while the card-to-tape transfer is also being performed.

In developing computational programs for the new stored-program digital computers, the first step is usually the development of a flow chart. The flow chart presents in graphic form the series of steps to be performed in producing the desired solution. The flow chart is usually followed by the development of a symbolic program using a symbolic programming language. For the analysis of the Project TALENT data, the University of Pittsburgh Computation Center has available an IBM Type 7070 system consisting of 10,000 words of core storage, fully transistorized with high density magnetic tapes, and the automatic floating decimal point feature. Other equipment includes an on-line printer, a high speed (500/min.) card reader and card punch (250/min.). Off-line equipment includes a 1000 card per minute sorter, a reproducer, a 407 accounting machine, and three key punching machines.

For the IBM 7070 being used for the analysis of data for Project TALENT the symbolic language used is usually Autocoder. Using Autocoder for symbolic programming permits the substitution of words and easily remembered combinations of letters and numbers for later conversion into the 7070's ten digit numeric instructions. Using a utility program

usually known as the assembler or compiler, the symbolic program is converted into a program in basic computer language. This program in basic computer language permits the use of sub-routines available in the Computation Center's library. The computer program as well as the data are stored in memory in the stored-program computer.

A very important aspect of programing is locating and removing errors. It is virtually impossible to prepare a complex program and have it check out the first time. It is not uncommon to have the amount of time spent in "de-bugging" the program exceed the time required for the final production run. De-bugging presents a difficult problem-solving situation since the types of errors found often appear to provide little assistance in detecting the errors in the program. This, of course, makes the use of a previously prepared and checked-out program a tremendous advantage for the researcher.

The 10,000 word core storage memory of the IBM 7070 allows storage of half of a symmetrical  $130 \times 130$  correlation matrix. Taking advantage of the computer's memory and speed, Dr. Gary Lotto developed a program to compute all of the 8,385 correlations in such a matrix efficiently with a single program. These intercorrelations can be determined in less than seven seconds per case; i.e., for a sample of 1,100 cases the 8,385 correlations could be computed in about two hours. This  $130 \times 130$  matrix can then be inverted in about thirty minutes, thus making the multiple correlation between any one of the 130 variables and the remaining 129 immediately available. The partial correlations are also available from the inverted matrix.

One of the other basic programs being developed for the Project TALENT data analysis by Dr. Lotto permits computing means and standard deviations for each of eight variables for each of the 500 alternatives included in the 100 five-choice answers to questions regarding plans for attending college, type of occupation to be entered, parents' occupation, study habits, health, extra-curricular activities, etc.

In reporting results from projects in connection with the data processing programs, major gains have been made. Through proper programing, the complete report of results including the name of the high school, grade, and headings for various listed items on the program output are recorded on the tape along with the detailed data. This tape output from the computer can also include summary statistics for the grade and school for each of the tests. Since, as previously indicated, printed output from a high-speed computer is one of the slowest operations, much greater efficiency can be obtained by using an off-line printer or a simpler computer such as an IBM 1401 to prepare the printed rosters to send to schools or other co-operating groups.

In preparing a set of four 58 x 58 matrices of intercorrelations for reporting some of the preliminary results from Project TALENT it was found convenient to fasten two output sheets together and photograph the output directly so that the 58 x 58 matrices could be multilithed from the reduced size on to standard 11 x 17 sheets. One other procedure which has been found effective for certain types of duplication of data consists of placing a ditto master carbon in back of the original output sheets so that a series of ditto masters are automatically prepared as part of the printed output.

In Project TALENT it is planned that students be followed up one, five, ten, and twenty years after graduation from high school. Two features of the new computer should greatly facilitate these follow-ups. One is the tremendous speed with which student address labels can be prepared from data already on tape. The second is the ease with which the computer can sort and merge the 50 or 100 new items of data collected in each of these follow-ups with the several hundred items previously stored for each individual.

Predicting the implications of the new data processing techniques for research in education is difficult. However, the experience on Project TALENT suggests some likely directions. In addition to the types of small exploratory studies which have been most common in educational research in the past we can expect increasing numbers of both large-scale and long-range definitive research projects in the future. Certainly new research studies do not have to be limited to the small number of variables feasible for older data processing methods.

Another important new research method made available by this computing equipment is probably best characterized as the data bank method. As explained in Dr. Hjelm's paper, using this method, the educational researcher defines his problem, outlines his specific objectives, prepares his design in terms of the precise data to be collected and the manner in which it is to be analyzed, and sends these to the data bank. At the data bank a program is prepared to select and analyze the data, according to the specifications given, from information pre-recorded on tape. If the program can be combined with other current analyses, such a study can be done using information on large numbers of subjects at a relatively nominal cost. It may take some time before data banks adequate for many types of educational research are available. However, it is believed that the data from Project TALENT can be regarded as representing an initial data bank from which substantial experience can be gained as a basis for establishing more complete and precise data banks for future research. In any event, the future of educational research using electronic computers appears to be limited only by the imagination and insight of the educational researcher.

# Research Methodology and Modern Data Processing

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Although a scientist is usually pleased if he is asked to make a prediction about some aspect of the natural phenomena he happens to be investigating, he would probably not be too excited about a request to predict the future direction of research in his field. Most scientists realize how unpredictable the research process itself is. Throughout the history of science there are examples of how an entire research methodology has changed because of the development of new devices for examining natural phenomena. The electron microscope and radio telescope are two recent examples of developments which have produced surprising and revolutionary changes in research methodology.

Fortunately, my task here is not to predict what educational research will be like in twenty, or even five years, but rather to examine the *potential* of the electronic digital computer for revolutionizing the methodology of educational research. Actually, as the three previous papers of this symposium have amply illustrated, the change has already begun. My intention, therefore, is to describe briefly *other* aspects of this revolution's nature and promise.

The rate of growth in the computer field has been extremely rapid.

Although the first computers available for research were completed in the early fifties, only during the last two or three years have they become generally available at most universities, at least the medium-sized type such as the popular IBM 650 model. As Beaton pointed out above, over one hundred universities have some type of computer for student and faculty research.

The speed of computation has had corresponding increases. The multiple-group classification problem illustrates this point nicely. This type of analysis can now be done on a scale which would have been computationally prohibitive prior to the electronic computer. The problem of distinguishing among several groups on the basis of several variables, when analyzed on the computers available in 1955, took several hours. An improved computer cut the time for similar problems to about 20 or 30 minutes. Today the IBM 709 will do such a problem in five or ten minutes and the new transistorized IBM 7090 is five times faster than the 709!

Simply being able to compute more t-tests or bigger correlation matrices, and doing it faster and easier, in itself is not going to be particularly rewarding. Rulon has pointed out: "These machines may not only simplify and facilitate the production of research work of the kind we have been doing, but may actually enable an entirely new brand of research work: the kind we would not even attempt by hand calculation."<sup>1</sup> But what is this "new brand," what are these great expectations?

First of all, it involves a movement away from the traditional univariate experimental design which proved fruitful for physical scientists but which has had little pay-off in educational research. Experiments continue to fill the educational literature in which performance on some achievement test is compared for two groups, perhaps one viewing television, the other doing the "regular" work. This type of experimental design has had little impact. Human behavior and the objectives of education are more complex than that.

One previous draw-back was that more complex research models, in which many variables of human behavior and environment could be considered, were not available. Multivariate statistical methods and the computer have changed that. Perhaps a short review of a few of the more promising multivariate procedures would be useful in clarifying this point. It is important to remember that many of the multivariate procedures

<sup>1</sup> P. J. Rulon, "Notes on computer application in educational research," *Harvard Graduate School of Education Bulletin* (March, 1957), 28.

Wrigley came to a similar conclusion when he examined the computer vis-a-vis psychological research. See:

F. Wrigley, "Electronic Computers and Psychological Research," *American Psychologist*, XII (August, 1957), 501-508.

\_\_\_\_\_, "Data Processing: Automation in Calculation," *Review of Educational Research*, XXVII (December, 1957), 528-543.

described here were primarily mathematical curiosities prior to the computer, if they were developed at all.

One important development has been the generalization of the analysis of variance and covariance. For instance, a computer program is now available for testing the differences among any number of groups (treatments) on multiple criteria, after adjustment has been made for any number of pre-tests.<sup>2</sup>

Our present limitation in educational experimentation is no longer in terms of mathematical models or computational feasibility, but is in part limited by the lack of reliable instruments for making the multiple measurements which are now analyzable. The goals of instruction must be more operationally defined. But the computer is useful here too. Item analysis, so important in the development of new tests, no longer need be the drudgery it once was. Computer programs are already available for this task.<sup>3</sup>

Another important tool in educational research is multiple factor analysis. This can now be done as it should be done, but has *not* been done because of computational compromises.<sup>4</sup> These techniques are very useful in understanding human behavior and also will be useful in instrument development. Cooley and Reed recently learned a good deal about the dimensionality of a science activities inventory by a factor analysis of the *seventy* items on the original form.<sup>5</sup> An analysis of that size is no longer impossible, it is now an hour's work!

Studies of educational and vocational decisions are beginning to utilize multivariate prediction procedures now that the computers needed in their computation are available. In a recent investigation of the transition from high school to college, the research design required several two-group discriminant functions for certain criterion groups relevant to the process of becoming a scientist.<sup>6</sup> Four functions were computed, each based upon a different system of data (interests, ability, temperament, and environment) involving 200 students and about ten variables per system. The total

<sup>2</sup> W. W. Cooley and P. R. Lohnes, *Computing Multivariate Statistics*. (In preparation, 1961).

<sup>3</sup> Both Iker and Tucker have proposed a computer program for selecting test items to maximize validity. See:

H. P. Iker, "Item Analysis on the Augmented IBM 650," *Educational and Psychological Measurement*, XX (Spring, 1960), 153-170.

Ledyard R. Tucker, "Some Computational Problems in Psychology," Proceedings of a Second Symposium on Large-Scale Digital Calculating Machinery (Cambridge, Mass.: Harvard University Press, 1951), 338-347.

H. F. Kaiser, "The Application of Electronic Computers to Factor Analysis," *Educational and Psychological Measurement*, XX (Spring, 1960) 141-151.

W. W. Cooley and H. B. Reed, Jr., "The Measurement of Science Interests: An Operational and Multidimensional Approach," Cambridge, Mass.: Harvard University, 1960. (Mimeo graphed)

John A. Mierzwa, "The Differentiation of Career Choices: A Study of the Choice of a Career in Science During a Two-Year Period in Late Adolescence" (unpublished Ed. D. dissertation, Harvard University Graduate School of Education, 1961).

computer time required, starting with raw scores, was 6.7 minutes. These analyses made it possible to determine the variables which are related to movement toward scientific careers and their interaction and relative effects. The resulting equations were capable of distinguishing (with 81% accuracy) the eleventh grade boys who entered college as majors in science and engineering two years later. This certainly illustrates the possibility of a new brand of research.

Of course multiple and partial correlations are now much more feasible to compute. Multiple regression equations, which used to take days to compute, are now done in a matter of minutes. Flanagan has pointed out above how a few of these techniques are to be used in Project TALENT.

Many variations in these multiple correlation techniques are also possible. For instance, Perry has recently examined the extent to which personality factors are relevant to drop-out at the U.S. Coast Guard Academy.<sup>7</sup> By comparing the multiple correlations between aptitude and graduation, and between aptitude with personality and graduation, he was able to show that the personality measures contained information regarding drop-out not found in the aptitude measures.

Another promising multivariate technique (little used before the computer) is canonical correlation. This research tool allows one to examine the relationship existing between two systems of variables. O'Hara and Tiedeman, for instance, examined the extent to which several measures of self-perception are related to standardized test measures of the same domain, such as aptitudes or interests.<sup>8</sup> The over-all relationships between two sets of variables can be determined and compared for different groups. Horst presented a recent paper in which several applications of canonical correlation are outlined.<sup>9</sup>

It would be possible to cite many other examples of recent investigations which used multivariate techniques necessitating computers. Professor Tiedeman, who instigated the Harvard Studies in Career Development, has recently compiled a bibliography of work relevant to career development done at Harvard since 1950.<sup>10</sup> At least thirteen of the twenty dissertations cited used multivariate procedures which required the availability of electronic computers.

A new area of educational research which the computer is creating involves

<sup>7</sup>Raymond J. Perry, "A Study of The Problem of Attrition of Cadets at the U. S. Coast Guard Academy" (unpublished Ed.D. dissertation, Harvard Graduate School of Education, 1961).

<sup>8</sup>R. P. O'Hara and D. V. Tiedeman, "Vocational Self Concept in Adolescence," *Journal of Counseling Psychology*, VI, No. 4 (1959), 292-301.

<sup>9</sup>P. Horst, "Generalized Canonical Correlations and Their Applications to Experimental Data." Seattle: University of Washington, February, 1961. (Mimeographed)

<sup>10</sup>D. V. Tiedeman and R. P. O'Hara, "The Harvard Studies in Career Development: In Retrospect and In Prospect." HSCD Report No. 15A, Cambridge, Mass.: Harvard University, September, 1960. (Mimeographed)

the computer simulation of psychological processes. The early achievements in the simulation of neural networks, pattern recognition, problem solving, and language interpretation has been summarized by Green.<sup>11</sup> As he points out, the results thus far imply a bright future in the complex task of model building in the behavioral sciences. Thus the computer becomes useful not only for the testing of more complex, multivariate statistical hypotheses, but also in the building of models for the improved understanding of human behavior and cognitive processes.

A clear statement of one of these simulation problems, pattern recognition, can be found in a recent *Scientific American* article by Selfridge and Neisser.<sup>12</sup> Here they describe how the computer can be programmed to recognize hand written letters of the alphabet. The manner in which the computer "learns" from experience will probably be useful in understanding how children learn to recognize similar patterns.

The teaching process has also been simulated on the computer. Coulson and Silberman have programmed the Bendix G-15 for this purpose.<sup>13</sup> Although the goal here is the development of "a flexible, automatic teaching machine that can release teachers from their roles as paper graders and drill masters," their work and similar studies should be able to tell us more about the teaching and learning processes.

The "quality control" aspects of educational research (as distinguished from "pure" behavioral investigations) can be much improved, and, in some instances, are only now possible because of modern data processing techniques. Once schools begin to keep permanent records on cards or tape, a variety of research operations can be performed which are not now feasible. For example, it is not difficult to find schools today that conduct large scale standardized testing programs and then do almost nothing with this potentially useful data. The use of some local industry's data processing center would finally make this type of data easily accessible and interpretable. In our enthusiasm for the new computers, it must be kept in mind that even the large school systems are just beginning to utilize elementary punch card methods in their business and evaluation functions, and the cards have been around since about 1890.

This "cultural lag" which is always observed in the application of new techniques is the main problem we face today in realizing the potential of the computer and other modern data processing procedures. Consider briefly a few specific aspects of the problem:

First of all, the computer cannot be readily adapted to the "clinical"

<sup>11</sup> B. F. Green, Jr., "Computer Models for Cognitive Processes," *Psychometrika*, XXVI (March, 1961), 85-91.

<sup>12</sup> O. G. Selfridge and U. Neisser, "Pattern Recognition by Machine," *Scientific American*, CCIII (August, 1960), 60-68.

<sup>13</sup> J. E. Coulson and H. F. Silberman, "Teaching Machine Simulated by Computer," *Computers and Automation*, IX (October, 1960), 9-10.

approach. It has been difficult "enough" to get educational research to move from anecdotes to univariate and bivariate statistics. The resistance (rather inertia) to the move toward the application of multivariate analysis and abstract probability models is even greater. Yet the computer's potential will certainly not be realized if all it is asked to do is compute more and more bivariate correlation coefficients.

Another large difficulty will be in familiarizing educational research workers with the techniques of modern data processing. It certainly is not going to be done through general courses in educational research, especially if recent texts introducing research are typical of the content of such courses. Of three such textbooks published since 1958, one had *nothing* on data processing,<sup>14</sup> one acknowledged the existence of sorting machines in one short paragraph,<sup>15</sup> and the third devoted a portion of one chapter to general recommendations for data processing.<sup>16</sup> With the possible exception of the last text, such introductions to educational research will hardly help combat this cultural lag.

My plea is not that all graduate students in education be trained to be computer programmers! However, we must develop a core of students thoroughly familiar with modern data processing techniques. These people are needed to develop the specific applications of these techniques to educational research (no one else will do it for us), and to guide their colleagues in computer applications as the need arises. Unfortunately, a quick survey of school of education catalogues revealed that very few schools offer courses in modern data processing. A one semester laboratory-type course can teach students the necessary fundamentals of punch card equipment and digital computers.

Most important of all, we must dramatically and emphatically point out the importance of early advice. Every research worker in education cannot be expected to have intimate familiarity with the machines, but he must be made to realize that if data processing and statistical analysis are involved, competent advice must be obtained *from the start*. One doesn't have to be in the field of measurement five minutes before someone will come forward with some questionnaire results or test data "to be analyzed." Somehow we must communicate the fact that the computer merely follows a set of specifically prescribed arithmetical and logical steps. To expect that the computer can make sense out of a pile of data in some mysterious way is not an uncommon expectation, but it is certainly unwarranted.

As part of one attack upon this communication problem, a manual for

<sup>14</sup> G. V. Good, *Introduction to Educational Research* (New York: Appleton-Century-Croft, 1959).

<sup>15</sup> J. W. Best, *Research in Education* (New York: Prentice-Hall, 1959).

<sup>16</sup> R. M. W. Travers, *An Introduction to Educational Research* (New York: MacMillan, 1958).

computing multivariate statistics is currently being prepared.<sup>17</sup> The most useful techniques are briefly described, examples of application are presented, and computational procedures are outlined, complete with flow charts and Fortran coded programs. We expect that this manual would also be useful to those with equipment other than IBM as they develop a library of multivariate programs.

So we see on the one hand the potential of the computer. A new brand of research is possible and is now emerging. It includes: the application of multivariate statistical techniques; computer simulation of various psychological processes; the use of large samples yielding a quantity of data which would have been previously unanalyzable; and the storage and retrieval of basic data and research information for purposes of knowing what is currently being done in the schools and how well it is being done.

On the other hand, we see the tremendous task we face in communicating these new developments to workers in education. Symposia such as this may help encourage others to learn the new techniques and utilize them in their work whenever applicable, but brief articles cannot be expected to communicate procedural detail.

The purposes of the symposium have been to point out some of the potential applications of the computer, and direct the interested reader to a few basic sources. If enough research workers in education accept the challenge, the changes which the computer can bring about will be unlimited.

<sup>17</sup> Cooley and Lohnes, *op. cit.*

# Educational Research: A Criticism

*In this article, provocative to both educational researchers and those who attempt to utilize their results, the author presents the theses that it is of the utmost importance to clarify concepts underlying educational research and to recognize that the methods of the social scientist in this respect are fundamentally different from those of the natural scientist. Examples from current educational research are then analyzed from this point of view.*

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## 1.

IN RECENT YEARS research in the psychosocial sciences has come in for considerable criticism. Adverse comment has been directed against the philosophical preconceptions in terms of which empirical research in these fields has been carried on, against particular imperfections in methodology, and on the grounds of the comparative triviality of both the matters which have received attention and of the results which have accrued. In so far as certain sorts of research in education employ procedures characteristic of research in the social sciences (and although the two fields are obviously by no means co-extensive, there is some overlap in that certain educational problems involve sociological or socially psychological factors), many of the criticisms directed against what goes on in the psychosocial sciences have their relevance in the educational field also. The nature of these criticisms, therefore,

must be carefully examined. I must state straight away that it is with research in education of this kind that I shall be almost exclusively concerned in this article.

In education, as in the study of society generally, the claim is often made that investigation involves methods of research analogous to those employed in the natural sciences and that the findings can be established with a similar degree of certainty. Thus, for example, the Director of the National Foundation of Educational Research in England has said:

Over the last sixty years or so, we have come to see that there are . . . educational *sciences* which, within their scope, are as susceptible to scientific rigour as are the so-called exact and natural sciences.<sup>1</sup>

Yet Dr. Wall notes, in the fields susceptible to scientific investigation, the importance of large scale enterprises undertaken by a team of researchers:

The complexity of the variables with which we are faced in any real problem, coupled with the facts that the variation of one factor at a time and the destruction of experimental material, are impossible, make the educational sciences extremely precarious if they are not pursued by a well equipped team. Moreover exact replication of experiments is impossible. Hence we are obliged to rely upon carefully chosen large samples, upon the closest possible estimates of statistical probability (rather than on exact demonstration) and upon a sufficient awareness of sources of error so that they can be randomised if not controlled or eliminated.<sup>2</sup>

Here he seems to be admitting that the educational sciences are not, in fact, "as susceptible to scientific rigour as are the so-called exact and natural sciences." But it is interesting to note the grounds on which he admits this. They are based on the complexity ("the variables") of the situations involved and on the fact that in many cases it is not possible to arrange experimental situations involving human beings. There is no suggestion that the nature of the basic "material" of the educational or social sciences may often be different *in kind* from that investigated by the physical sciences. Yet it is on such grounds that the attack on current modes of research in the social sciences has been mounted. The attempt to assimilate the natural and the social sciences, it is urged, is fundamentally a mistake.

The situation has been admirably analysed recently by Mr. P. Winch:

<sup>1</sup> W. D. Wall, *Educational Research and the Needs of the Schools*. An address delivered at the Annual Conference of the National Association of Inspectors of Schools and Educational Organisers, October 2, 1959 (London: National Association of Inspectors of Schools and Educational Organisers, 1959), p. 3.

<sup>2</sup> *Ibid.*, p. 5.

...the notion of a human society involves a scheme of concepts which is logically incompatible with the kinds of explanation offered in the natural sciences.<sup>3</sup>

Winch analyses a classical exposition of this view that social phenomena are of the same order as physical, only very much more complicated and involving more variables. He demonstrates its falsity by showing that the natural scientist is governed by only one set of rules, those relevant to scientific investigation, whereas the social scientist has to take into account another set of rules as well, those involved in the "phenomenon" he is investigating; for this phenomenon is itself a manifestation of social activity which will normally be subject to human purposes and meaning in a manner in which natural phenomena are not. This implies that the understanding of social phenomena involves a qualitatively different approach to that needed with natural, in that such understanding implies something more than simply external observation: it necessitates at least an imaginative projection into what the phenomena concerned mean, a meaning which can only come fully from inside the activity to be studied:

...a historian or sociologist of religion must himself have some religious feeling if he is to make sense of the religious movement he is studying.... A historian must have some aesthetic sense if he is to understand the problems confronting the artists of his period; and without this he will have left out of his account precisely what would have made it a history of *art*, as opposed to a rather puzzling external account of certain motions which certain people have been perceived to go through.<sup>4</sup>

Mr. Winch's analysis of social phenomena<sup>5</sup> has been considerably influenced by the concept of *Verstehen* adopted by Max Weber and other German social theorists. Quentin Gibson, in his recent book,<sup>6</sup> refers to this concept as involving "a sympathetic understanding of our fellowmen, of finding a meaning in their activities, of grasping intuitively how they feel, what their plans are, what they are driving at." He denies, however, that such "sympathetic understanding" can provide us "with any evidence of an alternative kind" to that supplied empirically, i.e., that "obtained from our sensory observations of the world around us or from our awareness of our own mental processes."<sup>7</sup> He does not deny that participating in a social process may be valuable as a means to understanding; but to do so, he considers, simply places the investi-

<sup>3</sup> P. Winch, *The Idea of a Social Science* (London: Routledge and Kegan Paul, 1958), p. 72.

<sup>4</sup> *Ibid.*, p. 88.

<sup>5</sup> He has other important points to make about the possibilities of prediction and the role of generalisation.

<sup>6</sup> Cf. Quentin Gibson, *The Logic of Social Enquiry* (London: Routledge and Kegan Paul, 1960).

<sup>7</sup> *Ibid.*, pp. 47-48.

gator in a "peculiarly favourable position to give evidence"; it does not open up to him sources of evidence different *in kind* from that available to others:

Unless the anthropologist becomes accepted by the members of the tribe, there are many things he will not hear about. Unless he is in a position to observe the daily round of inconspicuous activities, he will not have the material from which to infer beliefs and attitudes.<sup>8</sup>

But, surely, it is not simply a matter of the "things he will not hear about"; it is a question of the meanings that are to be attached to what he does know about. A social act takes on meaning from the subjective understanding of a personality participating within a specific framework and may differ in significance in accordance with depth of penetrative comprehension. Even when the general character of certain religious practices is recognised as such, the "meaning" that may have to the believer can play a quite different role in the life of that believer from what they can in that of a non-believer. In the same way, the act of sex can "mean" anything from the semi-clinical ("relief of tension") to the semi-mystical ("She is all States, and all Princes, I....").<sup>9</sup>

It may be urged that, even so, our knowledge would still ultimately rest on observation or awareness of our own mental processes.

This may be so; but it is not the point at issue. The significance of the notion of *Verstehen* lies in the way it helps us to appreciate how understanding the social and the natural world may differ. In the case of the latter, we only need to impose our concepts on the regularities observed; in the case of the former, such regularities as are observed take on meaning in relation not to the concepts we employ to distinguish them but to the social meanings they already have independently of our observation. It is so that we may arrive at the second order of meaning that "sympathetic understanding" is important. It might, of course, still be argued that the "true" participant understands things which the social scientist who participates only to understand misses—that in the very act of our self-awareness of our own mental activities, we separate ourselves from the unself-conscious experience. And, of course, in what follows I certainly do not wish to deny that much knowledge may be gained by purely external observation, or that there are, for instance, "psychosocial phenomena which are repeated in time and space and lend themselves to statistical mass observation"—such as "the ever-repeated mass phenomena of births, deaths, marriages, divorces" and so on.

The above quotation is from Professor P. Sorokin's recent attack on cur-

<sup>8</sup> *Ibid.*, p. 51.

<sup>9</sup> Indeed, one of the difficulties about social investigation is that certain sorts of experience belong, socially, only to a few, though there may be elements within the experience common to mankind—as in sex relationships. Hence the tendency, in so much social investigation, to treat experience at a comparatively crude level; the act of sex, in such investigations, is usually reduced to its common physiological element.

rent methods in sociology.<sup>10</sup> This is a book which obviously needs to be treated with a great deal of caution, as it is frequently intemperate and unbalanced. Nevertheless it contains numerous acute criticisms of modern techniques of psychosocial investigation. Sorokin, indeed, divides social phenomena into two broad categories: what he terms "congeries," chance collocations of unrelated social phenomena similar in kind to the mass phenomena cited above, and "systems," in which the relationships of the parts are of a qualitatively different nature, corresponding to the organic meaning structure implicit in the phenomenon concerned. Such "systems" are understood not through external observation but through "direct co-feeling and coexperiencing":

Only through direct empathy . . . can one grasp the essential nature and difference between a criminal gang and a fighting battalion; between a harmonious and a broken family. . . . The same can be said of the nature and differences of religious, scientific, aesthetic, ethical, legal, economic, technological, and other cultural value-systems and their subsystems. Without the direct living experience of these cultural values, they will remain *terra incognita* for our outside observer and statistical analyst.<sup>11</sup>

In support of his views on intuition he even cites current practice in the natural sciences themselves, where intuition has an important part to play; and concludes that "the anti-intuitional and anti-rational position of our psycho-social empiricists is obsolescent."

Yet, of course, reliance on "intuition" has its grave dangers; one is reminded of Karl Popper's tart comment: "By their intuition some people are prevented from even imagining that anybody can possibly dislike chocolate." And certainly, intuition works better when controlled by the known facts; the intuition of the *natural* scientist, which plays its part in the formation of hypotheses, nevertheless works within the framework created by the discipline of investigation involved. The question now arises as to how the social scientist, in view of the complexity of the situation by which he is faced—a complexity, be it noted, which is not reducible simply to a question of "variables" in the sense in which that word would be applicable in the

<sup>10</sup> P. A. Sorokin, *Fads and Foibles in Modern Sociology* (Chicago: Henry Regnery, 1956).

<sup>11</sup> *Ibid.*, pp. 159-160. Sorokin has many other criticisms to offer—notably about the basis of mental testing (cf. his "Testomania," *Harvard Educational Review*, XXV (Fall, 1955) 199-218.), the emphasis on quantitative methods, the deficiencies of supposedly "experimental methods" and the use of controls, and the drawbacks inherent in questionnaire methods. He is particularly contemptuous of "speech-reactional operations," the lack of adequate definition of terms, the deficiencies of investigations into group behavior, where some of the studies at least are "more dull and vague than a description of the case by a competent novelist or an imaginative participant-observer," and the fallacy of expecting precise prediction in this field. All of these have their relevance to the sorts of techniques, methods and expectations arising from research in the educational fields.

physical sphere—can manipulate his concepts. He cannot simply "arrange" the external world so as to accord with the traditions of his undertaking, for that part of the external world in which he is interested has its own set of meanings, and without some cognisance of those meanings in and for themselves, his undertaking would be fruitless. Further, such concepts may involve problems of value, about which agreement is likely to be difficult to achieve.

One of the most interesting solutions to the problem of how meaning-structures which contain a subjective or evaluative element can be made in some measure objective for scientific investigation is that suggested by the late Alfred Schutz (Schuetz). Schutz accepts the difference between the physical and social worlds and urges that the task of the social sciences is "to develop methodological devices for attaining objective and verifiable knowledge of a subjective meaning structure." His aim methodologically is not to rely exclusively on "empathy" or intuitive understanding but to clarify conceptually how the interpretative subjective understanding men practice in their daily lives in the common sense world can be harnessed to the requirements of what he insists is a *science*. Hence he refers to the "erroneous conclusion that the social sciences are *toto caelo* different from the natural sciences, a view which disregards the fact that certain procedural rules relating to correct thought organisation are common to all empirical sciences."<sup>12</sup> And he refutes the doctrine of what he terms "sensationalistic empiricism . . . which identifies experience with sensory observation and which assumes that the only alternative to controllable and, therefore, objective sensory observation is that of subjective and, therefore, uncontrollable and unverifiable introspection."<sup>13</sup>

Schutz derives much of his positive theory from a refinement of this concept of *Verstehen*, which he translates as "Interpretative Understanding." He begins by considering in some detail how in common sense experience we arrive, in the world of intersubjectivity which is the social world, at an "understanding" of each other. He considers that *Verstehen* simply refers to that understanding of each other at which we arrive by common sense and social acculturation in the ordinary course of events. Furthermore, there are many social situations where what appears to be the privacy of the individual is subject to the publicly verifiable and accountable rules of procedure controlling the nature of the experience concerned. In illustration he offers the discussions of a trial jury, where the "rules of procedure" are furnished by the "rules of evidence," as controlling elements. It is this "exploration of the general principles according to which man in daily life organises his ex-

<sup>12</sup> Alfred Schuetz, "Common-sense and Scientific Interpretation of Human Action," *Philosophy and Phenomenological Research*, XIV (September, 1953), p. 4. I am grateful to Dr. Asher Tropf for drawing my attention to the work of Schutz.

<sup>13</sup> Alfred Schutz, "Concept and Theory Formation in the Social Sciences," *The Journal of Philosophy*, LI (April 29, 1954), p. 261.

periences, and especially those of the social world" which "is the first task of the methodology of the social sciences."<sup>14</sup> Central to the solution of this task is the notion of typicality, with the opportunity it affords for some degree of generalisation.

"Typification" involves an abstraction from the concrete world around one made for the particular purpose in hand. "Objects" are invested with meaning in accordance with these purposes. These meanings are in the last resort only known to the actors. But in so far as their actions form part of the social world, they are open to the same sort of common sense interpretation as has been noted above—something which in daily life we all accomplish frequently. It may therefore be impossible to understand fully the subjective meanings people infuse into their actions (a point which, incidentally, a reading of Joseph Conrad would reinforce), but they can be understood in their typicality; thus:

... the social scientist replaces the thought objects of common sense thought relating to unique events and occurrences by constructing a model of a sector of the social world within which merely those typified events occur that are relevant to the scientist's particular problem under scrutiny. [In order to do this, he constructs] typical patterns of the actors' motives and ends, even of their attitudes and personalities, of which their actual conduct is just an instance or example.<sup>15</sup>

These are the first level constructs, involving the notion of subjective interpretation, on which the second level constructs of the social sciences have been built up. The difficulty now is: all scientific explanations of the social world must involve these subjective meanings; but, to be scientific, their propositions must be subject to verification and not refer simply to private uncontrollable experience. In other words, how is it possible "to form objective concepts and an objectively verifiable theory of subjective meaning-structure?"<sup>16</sup>

The answer lies in the construction of models—"homunculi"—in terms of which the social situation can be "interpreted."<sup>17</sup>

The basic insight that the constructs formed by the social scientist are constructs of the constructs formed in common-sense thinking by the actors on the social scene offers an answer.<sup>18</sup>

<sup>14</sup> *Ibid.*, p. 267.

<sup>15</sup> *Ibid.*, p. 268.

<sup>16</sup> *Ibid.*, p. 270.

<sup>17</sup> This notion of "homunculi" has, of course, been much influenced by Max Weber's concept of the Ideal Type.

<sup>18</sup> Schutz, *op. cit.*, p. 270.

These scientific constructs are "ideal typical constructs" created as part of the scientist's procedural rules with regard to relevance, thus ensuring the objectivity of the investigation. How are they arrived at? The social scientist

... observes certain facts and events within social reality which refer to human action patterns from what he has observed. Thereupon he co-ordinates to these typical course-of-action patterns models of an ideal actor or actors, whom he imagines as being gifted with consciousness. Yet it is a consciousness restricted so as to contain nothing but the elements relevant to the performing of the course-of-action patterns observed. He thus ascribes to this fictitious consciousness a set of typical notions, purposes, goals, which are assumed to be invariant in the specious consciousness of the imaginary actor-model. This homunculus or puppet is supposed to be interrelated in interaction patterns to other homunculi or puppets constructed in a similar way. Among these homunculi with which the social scientist populates his model of the social world of everyday life, sets of motives, goals, roles—in general, systems of relevances—are distributed in such a way as the scientific problems under scrutiny require. Yet . . . these constructs are by no means arbitrary. They are subject to the postulate of logical consistency and to the postulate of adequacy. The latter means that each term in such a scientific model of human action must be constructed in such a way that a human act performed within the real world by an individual actor as indicated by the typical construct would be understandable to the actor himself as well as to his fellowmen in terms of common-sense interpretation of every-day life. Compliance with the postulate of logical consistency warrants the objective validity of the thought objects constructed by the social scientist; compliance with the postulate of adequacy warrants their compatibility with the constructs of everyday life.<sup>19</sup>

Thus can subjective meanings be objectified for the purpose of scientific investigation.

In the creation of homunculi I can add a refinement on my own account. A training in literature is of great assistance in the sensitising of the intelligence to the complexities of social life and to the psychological reactions of individuals in social situations, in that literature uniquely affords the feel of the "whole man alive," as D. H. Lawrence pointed out. The literary intelligence can do much to refine the comparatively crude notions of personalities employed in educational research by affording the subjective element in the creation of homunculi width and depth and at the same time by admitting that notion of universality which is an acknowledged criterion of great

<sup>19</sup> Further detailed account of these "homunculi" will be found in "Common-sense and Scientific Interpretation," pp. 31-33. And the criteria operative in their creation—relevance, adequacy, logical consistency and compatibility—are discussed in Alfred Schuetz "The Social World and the Theory of Social Action," *Research*, XXVII (Summer, 1960), pp. 220-221.

literature. Researchers, indeed, could do worse than to study the *Notebooks* of Henry James or *The Art of the Novel*. To be specific, what I have in mind is the sort of sensibility cultivated by the artist in relation to his "characters"—represented, for instance, by Turgenev's desire, quoted by James,

... to show my people, to exhibit their relations with each other; for that is all my measure. If I watch them long enough, I see them come together, I see them *placed*, I see them engaged in this or that act, in this or that difficulty. How they look and move and speak and behave, always in the setting I have found for them, is my account of them...

together with James' subsequent comments in the preface to *The Portrait of a Lady*. Such insight, controlled by Schutz's postulates of relevance, adequacy, logical consistency and compatibility, offers a step in the direction of a refinement of type creation.<sup>20</sup>

Before I attempt to illustrate by the actual examination of some pieces of educational research how some of the foregoing principles might be applied, there is one final methodological point to be made. Despite some attempts in that direction, the discipline of social research has not succeeded in creating a specialised language of its own; indeed, in view of the nature of its subject matter which, as I have emphasised, is unlike that of the physical sciences in that it deals with what already has meaning apart from that assigned to it by the scientist, it is possible that the social sciences will never succeed in creating a fully technical vocabulary. Since, then, the statement of research topics usually involves the use of words common in every-day usage, the prime requisite in the consideration of research problems is the conceptual clarification of the terms employed, at least to the extent that possible ambiguities are cleared up or that ostensive definitions are offered. Extended clarifications of the type I have in mind can be found in R. S. Peters' *The Concept of Motivation* and in other books in the valuable series of "Studies in Philosophical Psychology" to which Mr. Peters' book belongs. A recent article in the *Harvard Educational Review* on research into the relative effectiveness of teacher- and learner-centred methods in education reveals the immense wastage which springs from a failure to analyse adequately the concepts of "democratic" and "authoritarian" teaching respectively.<sup>21</sup> It is disturbing to find how little modern philosophical techniques of linguistic analysis and clarification have affected our thinking about social science research; yet as a preliminary to any such research it is important at least to decide what

<sup>20</sup> On the role of the literary intelligence in education see my "Education and the Literary Intelligence" in *Education for Teaching*, XXXVIII (November, 1955).

<sup>21</sup> Richard C. Anderson, "Learning in Discussions: A Resume of the Authoritarian-Democratic Studies," *Harvard Educational Review*, XXIX (Summer, 1959), pp. 201-215.

questions involved are really conceptual and what empirical. As Winch observes:

... many of the more important theoretical issues which have been raised in [social science studies] belong to philosophy rather than to science and are, therefore, to be settled by a priori conceptual analysis rather than by empirical research. For example, the question of what constitutes social behaviour is a demand for an elucidation of the *concept* of social behaviour. In dealing with questions of this sort there should be no question of 'waiting to see' what empirical research will show us; it is a matter of tracing the implications of the concepts we use.<sup>22</sup>

## 2.

It is necessary to see how the methodological notions we have been examining might affect our assessment of some contemporary educational research. I will take most of my examples from the English journal, *Educational Research*, though the articles concerned draw extensively on research undertaken in the United States as well as in England.

One omission which can frequently be noted lies in the neglect of an adequate clarification of the concepts employed. Thus Dr. Kellmer Pringle, in the article, "Social Learning and Its Measurement"<sup>23</sup> becomes involved with the extremely difficult conceptual problem as to what constitutes "social maturity." She opens her article with the surprising remark that "The adult who is socially mature is not hard to recognise," and proceeds to list five broad characteristics, each of which merits further analysis on its own account. She then comes to appreciate that "the general concept of social maturity and the more specific one of social competence, are crucial for psychological study" and proceeds to offer a tentative definition in terms of conformity to social custom and of constructive participation in community affairs, a definition which she admits "begs fundamental questions." She shrugs off criticism with the remark that further "argument would lead into moral and philosophical realms outside the scope of this article" and continues as if conformity to the standards laid down by society were the sole mark of the mature personality, though she does admit that these standards may vary from social group to social group.

Obviously, from what she says in the rest of the article, she favors attempts to measure levels of social "competence" which she considers essential elements in the development of social maturity.

<sup>22</sup> Cf. P. Winch, *op. cit.*, p. 17.

<sup>23</sup> M. L. Kellmer Pringle, "Social Learning and its Measurement," *Educational Research*, II (June, 1960), pp. 194-206.

By this term is meant the ability to carry out social tasks normally achieved by children of a given age as there are some fields in which all children are expected to reach eventually certain minimum standards. Examples of such fields are habits of eating, cleanliness, dressing, the attainment of personal and economic independence.<sup>24</sup>

This represents an entirely arbitrary selection from a possible range of characteristics as measuring instruments; moreover, some of these characteristics are themselves subject to wide possibilities of interpretation. What, for instance, constitutes "personal and economic independence"?

The fact is, that research along these lines is impossible given the vagueness of the concepts to be "measured"; and there is a further danger that what will be produced will simply be a number of stereotypes of behaviour which will militate against the recognition of children who, perhaps because of superior ability, demonstrate certain social oddities. As Dr. Wall puts it in the previous number of *Educational Research*, in talking of "Highly Intelligent Children":

Some of the problems of these children . . . arise from deeply-rooted attitudes in our society, stereotypes of what is and is not acceptable from children and adolescents.<sup>25</sup>

A further example will reinforce the necessity for such conceptual analysis and, at the same time, indicate how Schutz's approach may be of assistance as a technique of research. In an article by Dr. K. M. Evans, it is concluded that, though

. . . there is a great deal of information available about teachers and teaching efficiency. . . . Some of it is contradictory and some of it inconclusive. Differences between results obtained appear to be more marked than similarities. . . .<sup>26</sup>

This is not an impressive result in a matter as fundamental to the process of education as the effectiveness of the teacher, particularly in view of the "very large number of investigations which have been carried out." When one has read Dr. Evans' article, however, it is not difficult to see where some, at least, of the trouble has arisen. She stresses the importance of agreement about the criteria in terms of which what constitutes "good" teaching is to be judged. What, however, she, and those whose work she considers, fail to recognise is that before the question of criteria can even be raised it is necessary to

<sup>24</sup> *Ibid.*, pp. 199-200.

<sup>25</sup> W. D. Wall, "Highly Intelligent Children," *Educational Research*, II (February, 1960), p. 109.

<sup>26</sup> K. M. Evans, "Research on Teaching Ability," *Educational Research*, II (June, 1959), p. 33.

undertake a conceptual clarification of what it means to teach, what, in fact, is involved in the concept of "teaching." The search for criteria all too often rests purely on empirical grounds, as Dr. Evans herself makes clear when she introduces her own search for criteria by asking: "How do we, in fact, assess teaching ability, and are our methods satisfactory?" But the question of what constitutes the process of teaching someone something is not in itself an empirical question; it is a request for a clarification of what is involved, conceptually, in the activity of teaching. Furthermore, of course, the elucidation of what it means when we speak of "teaching" implies that the teaching has been successful, for it is not possible at the same time both to teach someone something and to fail to teach someone something. The notion of teaching unsuccessfully involves a contradiction in terms, though, of course, it is possible to talk of "having tried to teach"; and it is possible to distinguish degrees of success.<sup>27</sup>

When we speak of "teaching" we imply, as part of the grammar of the concept, both a direct and an indirect object—we teach something to someone; no process just of "teaching" is possible. To summarise what should, by rights, be argued at some length, it would be reasonable to conclude that, by such a concept, we imply the conscious bringing about in others of certain desirable mental or dispositional changes by morally acceptable means. It is necessary to insist on the moral reputableness of the means in order to cut out changes brought about by torture, brain-washing, etc. It is also necessary to insist that the changes shall be desirable, as otherwise teachers like Fagan would qualify. Of course, it would be possible to dispute the adequacy of the definition—conceptual questions are not ones that can be "settled" in the way in which, frequently, empirical ones can. Nevertheless, the analysis has been carried out far enough to make clear some, at least, of the logic of the concept of "teaching."

For the sake of argument, then, let it be agreed that the success of a teacher is to be measured in terms of the degree of desirable change he can bring about in the understanding or dispositional abilities of his pupils. The point now arises as to how these changes are to be measured. And here it becomes obvious that there is no possibility of setting up any general test of competence. The tests must take account of the nature of the change involved. In the same way, it is only possible to construct a model of successful teaching in relation to the teaching of a particular "subject" in terms of insight into the *nature* of that particular "subject" and of the particular sorts of demands that the nature of the "subject" makes in relation to the stage of develop-

<sup>27</sup> Dr. Israel Scheffler, in his recent *The Language of Education* (Illinois: Thomas, 1960), distinguishes between the "success" and the "intentional" use of the word "teaching." Even if one were to accept this rather than a distinction between "teaching" and "teaching" (i.e., an elliptical form implying "trying to teach") it is obvious that, in considering teaching ability, one has the "success" meaning in mind.

ment of the pupils concerned. For, if the successful teacher is he who makes those specific changes in his charges which relate most closely to the fundamental structure of the "subject" concerned, taking into account their particular stage of development, it is obvious that "subjects" differ immensely in the nature of the demands which they are likely to make on the teacher's capacity. Hence the model of the successful teacher, the "homunculus" in Schutz's terminology, must differ according to subject and pupils. Thus, to give an example, it is no good even setting up the possession of a good voice as a universal requisite for all types of teaching. Even apart from the ambiguity as to what constitutes a "good" voice, it is clear that voice, in the teacher of poetry with its demands on reading and dramatic ability, is likely to be more important than it is in, say, a teacher of woodwork; and clarity of enunciation is likely to be much more vital in a teacher of foreign languages than it is in one of history.

My point is that there are no universally applicable criteria of what constitutes a good teacher; and the attempt to lay down such general criteria is, in part, an explanation of the unproductiveness of much of the research on the subject which has been done. What, then, is required as a preliminary to research is an initial clarification of the basic concepts employed. Once teaching is seen as an interactive process in a context, it is relevant to demand insight into the particular nature of the interactions involved in different sorts of context. It is useless to draw up lists of "characteristics" and then to try to measure how important each is. Some of these characteristics may enter into all the contexts where good teaching takes place,<sup>28</sup> but the emphasis to be placed on each will vary with the nature of the specific kind of teaching situation involved; furthermore, such characteristics will be analysable only in relation to a total configuration which will bring into prominence now one aspect, now another. The only way to scientific understanding of such a complex situation lies in the creation of a series of models based in some measure on subjective assessments of objective situations—

<sup>28</sup> For example, intelligence. As soon as one begins to look at what is involved in teaching contexts in the way I have suggested, one comes to see how complex the situation usually is. For instance, what for many years has appeared to be a fairly mechanical job, that of teaching the first steps in arithmetic, is shown, if the theories of Piaget and Dr. Dienes are correct, to be a much more complicated matter than was thought; in that what is really necessary is not simply the drilling of mechanical steps but a series of explanations which will clarify not only the processes at stake but help to make clear to the child the very nature of the mathematical concepts involved. Yet Dr. Evans informs us that "Results of statistical studies . . . leave the question of the importance of intelligence in some doubt. In many studies correlations between the results of intelligence tests and assessments of teaching efficiency are small." But this surely simply raises doubts about the relevance of intelligence tests in relation to intelligent behaviour. For "intelligence" is not a quality we can have apart from the ability to act intelligently. When we say that a human being shows intelligence, we don't mean that he applies something called "intelligence" and then behaves; we mean that he displays intelligence by his ability to act successfully (whatever that may mean in the context) in situations requiring a complex interplay of understanding and judgment. When teaching situations are analysed in the way I have suggested this surely is likely to be characteristic of most.

what it means to teach this in this sort of context. There can be no general answer to the question "What makes a good teacher?" because a good teacher is always acting in concrete situations which will vary the demands made upon his skill; at best, there can be a number of particular requirements to meet broadly assessed similarities of situation. Built into the very notion of teaching is the need to consider: "Who is teaching what to whom?" Here, Schutz's conceptual apparatus of the "homunculus" is of the first importance<sup>29</sup> —as, even in general terms, it helped in seeing what is wrong with so many attempts to define the nature of the "good teacher." At the very least one needs to create "homunculi" called "the French teacher," "the history teacher" or the "nursery school teacher," and to assess typically how these conceive of their job.

Something of the same way of looking at the situation, involving a more strongly marked appreciation of the subjective element, may be shown to have its uses in relation to Dr. C. M. Fleming's study of "Class Size as a Variable in the Teaching Situation."<sup>30</sup> Fleming points out that, contrary to expectation,

The benefits of small classes, though commonly taken for granted by theorists, are as yet largely undemonstrated in the pages of accredited research reports. This conclusion has been reached at every level from infant-school to University lecture-theatre. It has been formulated in relation to many subjects; and it is supported both by test results and by assessments of various types.<sup>31</sup>

The interesting thing about the researches that Dr. Fleming analyses is the small amount of attention that appears to be paid to what could reasonably be predicted concerning the subjective interpretation the teachers concerned are likely to place on the nature of their job. Implicit in every effort, it can reasonably be assumed, is a certain interpretation of what each one was about, i.e., that implicit in the concept of teaching which we have already examined above. In other words, whatever the "variables" might seem to be, the total situation is likely to be controlled by the teacher's realisation that it is his function to teach something to a set, large or small, of somebodies. This, at least, is the unspoken assumption of his enterprise. That being so, it is not expecting too much to suggest that the teacher, in various small ways, would adapt himself to the nature of the task in front of him, particularly when he would know he was in a test situation. Adaptations of

<sup>29</sup> It should be said that Dr. Evans is by no means unaware of some of these difficulties (cf. Section II, "The assessment of teaching"). But she points to general difficulties resting on empirical grounds; she fails to see the initial need for conceptual analysis, and she suggests no conceptual tool by means of which the difficulties may be in some measure overcome.

<sup>30</sup> C. M. Fleming, "Class Size As a Variable in The Teaching Situation," *Educational Research*, I (February, 1959), pp. 35-48.

<sup>31</sup> *Ibid.*, p. 38.

voice, vigour, clarity of enunciation, and so on would take place—anyone who has taught or lectured to both small and large groups knows how different the "feel" of the two situations is and how that difference of "feel" affects the actual "teaching" in a number of subtle ways, even though superficially the "methods" adopted in the two cases may appear on the surface exactly similar.<sup>32</sup> Thus the element of size cannot simply be regarded as a "variable" in the sense in which a physical phenomenon can be so regarded in a physical experiment, where the "subjective" response of the other "variables" is nonexistent; it is a "variable" which leads to a qualitative difference among the other "variables," a "variable," that is, which alters the "meaning" of the situation in ways which affect conduct qualitatively; and this is quite frequent in the consideration of "variables" in psychosocial phenomena, for the variables themselves are invested with subjective meaning and cannot be treated simply as "factors" with their monolithic implications. In one experiment Fleming reports on, the clue to the situation is perhaps there; but its implications seem to have been missed. Fleming first attempts to treat the mechanical "variables" involved:

In extensive interviews in which an attempt was made to discover the opinions of the students on such matters as vision, hearing, ventilation, opportunities for questions, the large groups appeared to have been as satisfactory as the small except for some complaints as to overcrowding...<sup>33</sup>

However, a crucial element in the situation is hinted at but not taken up—or so the report would seem to signify:

The teachers, on interview, expressed awareness of greater effort in establishing informality with large groups, in enlisting participation in discussion and in discovering special difficulties among students...<sup>34</sup>

The situation, indeed, is analogous to the famous Hawthorne experiment when two groups of girls were chosen for an investigation into factory conditions; the physical conditions of the experimental group were altered in order to assess the importance of a variety of variables in working conditions, whilst those of the control group remained constant. It was discovered that, in these circumstances, such physical variables were unimportant; what

<sup>32</sup> This is a different matter from those "subtleties of interpersonal relationships" which Dr. Fleming notes at the end of her article, which seem only to involve differences of approach—teacher- or learner-centred—not a difference of the "feel" of a situation springing from a similarity of subjective assessment of the task involved within the same approach. (It is stressed in some of the reports that the same methods had to be used in the various test situations.)

<sup>33</sup> Fleming, *op. cit.*, p. 45.

<sup>34</sup> *Ibid.*

mattered was the attention paid to the girls, so that output in both control and experimental groups advanced equally. In other words, the girls' subjective interpretation of the importance of their work had altered: by asking their help and co-operation, the company had made the girls feel important, and their whole attitude to work had changed. This factor of subjective interpretation proved much more important than all the physical variables involved.

Another situation in which it is possible to employ Schutz's conception of the homunculus is in the assessment of the adequacy of questionnaire techniques and in the criticism of specific questions in particular pieces of social and educational research, as well as in the initial refinement of question-setting techniques. One social phenomenon who merits investigation but who has not received the attention he deserves is the question-answerer. A good deal of attention has been focussed on the refinement of questioning techniques—avoidance of ambiguities, development of multiple-choice or "open-ended" questions, inventories—and so on. Attention has been paid to lay-out, clarity of instructions, attractiveness of appearance, etc. But much less attempt has been made to analyse the processes implicit in the actual undertaking of questionnaire-solving—the sort of psychic expectations with which it is approached, the nature of the attention which is likely to be given to the question; what, in fact, it is likely to mean to a typical questionnaire-solver to be faced by questions of the conventional type for information-finding.

One point which might become clear as a result of an attempt to create such an image of an answerer is the fact that question-answering is a largely rational activity, one which, by the very nature of the demands it makes, the sort of attention it invites, involves only certain aspects of the personality—those associated with "thinking things out," "giving careful consideration to" and the like. This approach would imply the shutting-off of the less disciplined, more emotionally oriented aspects of human personality which, in the conventions of question-answering, are not likely to have much of a look in.

Let me try to illustrate my point by reference to a large-scale piece of research carried out by the Nuffield Foundation in England on the effects television viewing has on children.<sup>35</sup> The researchers attempted to discover something of the effect television had on children's values—the views of society, conceptions of adult life, ideas about foreigners and so on. One of their fields of interest was the ideas about marriage children imbibed from the T.V. screen, especially from the plays:

<sup>35</sup> H. T. Himmelweit *et al.*, *Television and the Child* (London: Oxford University Press, 1958).

We also tried to find out whether television affected the child's ideas as to what makes a good husband or wife. The children were asked to complete the following two sentences: *A good husband is a man who . . .* and *A good wife is a woman who . . .*.<sup>36</sup>

In so far as a great deal of popular culture is concerned with love and marriage, the effect which the presentation of marital themes has on the young is one of the profoundest importance. Yet the questions barely skim the surface of the sort of interest which is likely to be aroused about the relations between the sexes. Furthermore, and of greater significance for the point I am making, the very nature of the questions asks for an abstract, "rational," common sense type of answer remote from precisely that sort of affective impact that television is likely to make. Symptomatically, the investigators ask "whether television affected the child's *ideas* as to what makes . . ." They surely should have recognised the nature of television drama's appeal, an appeal which is remote from the rationalistic-moralistic ("good" wife) interest of the question asked. The sort of information that is needed here cannot be got at by questioning in this way, precisely because the whole psychic atmosphere in which such questions are answered is inimical to obtaining it. In other words, one's appreciation of the mental and psychological preconceptions of question-answering, one's re-creation, as it were, of the typical subjective responses of someone in the questionnaire-answering situation, makes one appreciate that questionnaires are only suitable for finding certain sorts of information ("for how long did you watch television last evening") and are not likely to elicit useful results when affectively based responses are called for. The answer to the question "*A good husband is a man who . . .*" can probably only be superficially verbalised by adolescents anyway; and when the aim of the questions is to discover the effect of experiences which are themselves emotional in origin, the information gleaned is of only a very limited sort of interest.

Questionnaire-setters have usually assumed that their questions *can* be answered provided they are unambiguous, clearly phrased, etc. What they have insufficiently defined are the limitations involved in the very activity of question-answering which is, in fact, a very particular kind of undertaking. We need, that is, to know much more about the subjective attitudes and expectations of question-answerers. One wonders in how many pieces of research the neglect of similar subjective interpretation of the situation is not commented on or even remarked. At least, the fuller realisation of its importance might do something to amend the present unsatisfactory state of research in education.

<sup>36</sup> *Ibid.*, p. 247. The treatment is, in fact, very perfunctory for so important an aspect of the investigation.

# On Abstraction and Generalization

*By investigating the connection between mental processes, this article focuses attention on the relationship between the processes of abstraction and generalization. Although many of the illustrations are drawn from the field of mathematics, the area of applicability is of much wider scope.*

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## 1. INTRODUCTION

IN THIS ARTICLE the subject of the connection between abstraction and generalization will be approached from the point of view of the investigation of a connection between mental processes. The logical and mathematical implications will not be ignored, as this would naturally be impossible. The terms abstraction and generalization will, however, refer to processes and not to finished products.

The process of abstraction is defined as the process of drawing from a number of different situations something which is common to them all. Logically speaking it is an inductive process; it consists of a search for an attribute which would describe certain elements felt somehow to belong together. A class is constructed out of some elements which will then be said

to *belong* to the class. This fundamental relationship between classes and their elements, i.e., the relationship to "belonging" or "being an element of" is realised in the direction from elements to class.

For example the forming of the concept of the natural number two is an abstraction process, as it consists mainly of experiences of pairs of objects of the greatest possible diversity, all properties of such objects being ignored except that of being distinct from each other and from other objects. The essential common property of all such pairs of objects is the natural number two. From all pairs of objects encountered (elements) we form the attribute (class) of two; this is the process of abstracting the natural number two from our experience.

The process of generalization, instead of leading from elements to classes, leads from classes to classes. We shall speak of two kinds of generalization:

(1) *Primitive generalization* is the passing from one class to another where the other includes the former as a part.

For example, a child may notice that the order in which numbers are added does not affect the sum. He first notices this as a curious fact applicable to those numbers with which he has had to deal; he is in fact dealing with rather a restricted class of natural numbers. When he realises that this must of necessity be so for any pair of natural numbers, he has generalized from the class of numbers of his actual experience, to the class of all natural numbers. (We are not here concerned whether classes are given in extension, that is, by element, or intension, by properties.)

(2) *Mathematical generalization* is defined as follows: A class *B* is a mathematical generalization of the class *A* if *B* includes as a part an isomorphic image of *A*, in relation to all relevant properties. This means that the classes *A* and *B* could consist of quite different elements, as long as there was a part of *B* which was somehow an exact image of *A*, mirroring the properties of *A* in all relevant respects.

An example of mathematical generalization is that of passing from natural numbers to positive and negative integers. Positive integers have exactly the same properties as natural numbers, yet they form a sub-class of the class of directed numbers to which the natural numbers do not belong. The class of directed numbers is now the class *B*, the class of natural numbers the class *A*. The image of the class *A* in the class *B* is the class of positive integers. When we do a mathematical generalization we somehow jump into quite another world and then we find that a *part* of this new world is exactly like our *entire* old world.

To make the matter as clear as possible, the examples are repeated schematically below:

*Abstraction process:*  
Pairs of distinct objects  
(elements)

→ attribute "two"  
(class)

*Primitive generalization:*

$2+3=3+2$ ,  $4+1=1+4$ , ... etc.  
(including experience up to date)  
(restricted class)

$\rightarrow A + B = B + A$   
for all numbers A and B  
(generalised class)

*Mathematical generalization:*

Natural numbers (1, 2, 3, ...)  
(restricted class)

$\rightarrow$  positive and negative numbers  
(+1, +2, +3, ... -1, -2, -3, ...)  
(generalised class)

## 2. THE ABSTRACTION CYCLES

According to Jean Piaget (8), there are three developmental stages that a child passes through during his stay at school. The critical ages of passing from one stage to the next appear to occur at seven and twelve years of age. In the stage up to seven, play is predominant as a cognitive process, in other words the child is unaware of the fact that he is learning. Between seven and twelve comes the so-called concrete operational stage, where the child is aware of the learning situation and learns from his own concrete experiences. After twelve, he is able to assess these concrete experiences, put them into classes, and he is able to think in terms of the relationships of these classes. In other words he *makes use* of the concrete experiences collected in the previous stage. This is known as the logical stage, the consideration of relationships between classes being the essence of logical thought.

The above is a developmental cycle, ending in adult forms of thinking. If the cognitive process has been kept dynamic, the development does not cease here, but a kind of play activity sets in on a higher level. The experiences collected, the classifications achieved, form the bricks with which new (usually mental) games can be played, and this ushers in a new play stage. Such is the situation when a young mathematician starts out on a new path of research: he plays with his bricks, until he perceives a direction in which he can hopefully turn, he operates his tools in this direction, until he forms a theory in which his bricks will be put together in a certain way. He then proceeds to check his structure logically, i.e., he ascertains the relationships between his pieces and makes sure that the structure does not collapse (freedom from contradiction). He has then built himself another toy with which he can start out on another game.

It is suggested here that what Piaget perceived as a developmental cycle in the large, as a macrocosmos as it were, also occurs in the formation of every abstract concept as a microcosmos.<sup>1</sup> But not only does this happen in adult life, it happens in childhood, the structure of the cycles being the same, only the content being different. It is in fact the play element in every cycle

<sup>1</sup> This was suggested by the author in references 4, 5 and 6 and attributed to Piaget. It has since been suggested that Piaget would not agree.

that provides the energy for the completion of the cycle. Play is to be understood as undirected activity, seemingly purposeless, in which there is freedom to experiment; during such play, as it is undirected, we are energized by our own primary sources of energy. These sources are readily available to children, especially young children, but fitting them into the straight jackets of our culture heaps more and more layers of civilized veneer on top of these sources, and so arises the so-called problem of motivation. We never wonder how to get a child to play, but it is quite a job to get him worked up about congruent triangles. The primary energy has been stopped up in some way, and other ways of inducing action in the directions required by our culture patterns must be found. If only ways could be found whereby the primary sources of energy that induce children to play are not interfered with, in fact if these sources could be utilized during the cognitive processes, enormous strides could be made in the field of education. To what extent it is possible to release these sources of energy in any particular culture without seriously interfering with the existing culture patterns is an anthropological problem which we cannot go into here; to what extent such changes in any particular set of culture patterns are desirable is a socio-ethical problem, also outside the scope of this article. It is suggested, however, that if play were allotted its rightful place in the cognitive processes as an essential part of every such process, there would be a continual release of energy and great consequent saving of effort required on the part of our educators; we should be putting into operation a kind of psychological reactor, and the problems of providing psychological power (motivation) would be transformed. It must, however, be borne in mind that were such a course adopted on a large scale, existing culture patterns might alter in consequence.

What corresponds to the concrete operational stage in the microcosmos of the formation of an individual concept? Surely it is the passing from apparent chaos to structure, from apparent lack of direction to the realization of a direction in our thinking. The playthings, whether concrete objects isomorphic to a structure or structures, or purely mental playthings, are now being put together according to some plan. The plan may not be a very coherent one, it may even be impossible of realization, but the work is no longer random. This is a very much more intense stage, and the energy derived from the play stage may be very necessary to carry us through the vicissitudes of the structured stage. If the structuring has not been too early or too severe, in other words if the cycle is allowed to follow its natural rhythm, the search for the final insight will be exciting and the power will not be reduced or cut off. The endpoint of this stage is the occurrence of the final insight; this is when all the pieces in the game appear to click together as if nothing could be more natural. This moment is a very exciting one, and provides the power for the next stage.

The next stage has really two aspects: one is *having a look at* what we have done and seeing how it is really put together (logical analysis), the other is *making use of* what we have done (practice). In the early years this stage consists mainly of practice and of rather little logical dissection; as we grow older and are able to "think about" our structures, we may wax more analytical. There will arise individual variations as to the weighting of this stage towards the logical or towards the practical side, and so variations from the so-called "purist" to the "practical man" will develop over a population. Whether such tendencies are innate or whether they can be substantially influenced by the manipulation of the environment, is again a problem outside the scope of this short article. At any rate, some of us get familiar with our own insights by internal dissection, others of us by looking for situations where they can be put into practice. The former tend to acquire an explicit, the latter an implicit knowledge of the same concept. It is probable that the majority of us possess both tendencies to a noticeable extent, if not to the same extent. In either case this stage completes the cycle, the concept is now safely anchored with the rest of our experience, and can be used as a new toy with which to play new games.

In what sense is the final concept, made operational by the completion of the cycle described above, an abstract concept? And can we say that one concept formed by one individual is more abstract than one formed by another? If we return to our definition of the process of abstraction as one of drawing from a number of varied experiences something which is common to them all, we may obtain a provisional answer to our question. If our concept has been distilled from a greater variety of experiences, it is more likely that only the relevant attributes have been abstracted than if the concept had been derived from a smaller such variety. For example, if geometrical squares have been encountered in all positions, not only with their sides parallel to dominant directions, then a square in the position on the left will be recog-



nized as belonging to the same class of things as the one in the position on the right. Children almost invariably call squares in the first position diamonds, yet in the latter position they recognize them as squares. Children have not, on the whole, had sufficient experiences of squares in varied positions, if they make the classification referred to above. The class formed by them is of "squares with sides parallel to the frame," instead of the class of "squares."

The problem remains of what we should understand by more or less abstract. In order to frame a workable definition, at least some tentative methods of ordering if not of measurement, must be suggested. Probably the sole

possible methods would involve tests of the recognition of the concept in a number of *different* situations. The more different situations there are in which the concept is recognized as being applicable, the more likely is the formulation of the concept to be free from irrelevant trimmings. It would seem *a priori* probable that the larger the number of situations from which a concept has been abstracted, the larger will be the number of appropriate situations in which it will be recognized to be relevant. We might set up the hypothesis that the degree of abstraction of a concept is in direct proportion to the amount of variety of the experiences from which it has been abstracted. Such a hypothesis is essentially capable of being tested, and preliminary experiments have so far confirmed its validity.<sup>2</sup>

It is hardly possible to form abstract concepts of any degree of complexity without some kind of symbolism. Language is, for example, just such a symbolism, in which practically every word refers to a class, the elements of these classes being objects, actions of various kinds, different connections between actual situations and so on. Such elements are labelled nouns, verbs, conjunctions, etc., for convenience; it should be remembered, however, that the class of nouns is a class of words (symbols), including such words as table, chair, man, etc. These words themselves symbolize classes of objects, for example, table is a symbol for the entire class of tables, not for any particular table; all such particular tables are the elements of the class table. The class of nouns is therefore already a class of classes of objects, the class of tables is only a class of objects. It is just the formation of classes superimposed on one another in rapid succession which makes the process of abstraction difficult for those who do not find the experience provided adequate for the completion of the cycle for each class-formation. In the case of mathematical concepts, classes of classes of classes of . . . etc. of objects are heaped together in all sorts of relationships to each other. The mathematician's job is the *making* and the *sorting* of such heaps. In order not to get lost in the maze of his own making, he uses symbolism which reminds him of the structure of the maze. For example the symbol

$$\int_a^b f(x) dx$$

is vividly reminiscent of the structure of the definite integral.

It is very important not to confuse the symbols with whatever it is that they symbolize. Words are not identical with that which they symbolize; mathematical symbols are likewise not identical with the structures they symbolize.

<sup>2</sup> These preliminary experiments are as yet unpublished. Research by the National Foundation For Educational Research for England and Wales is in progress and this and allied problems and publications will appear from time to time in *Educational Research*. See reference 6.

For example the symbol above for the definite integral symbolizes that which situations such as work done by a force, the area under a curve, the volume under a surface, etc. have in common. The symbol itself cannot be termed abstract, it is just some chalk marks or printer's ink. It can only be said to symbolize something abstract, not to be abstract, and this only where it is used as a vehicle for communicating the common essence to a number of different situations.

Just as we must draw a careful distinction between abstraction and symbolism, we must likewise do so with abstraction and association (6, Ch. II); particularly is this important when the associated activity is apparently of a symbolic character. According to our definition of abstraction, it is not possible to abstract from one type of experience, it is necessary to have at least two types. It is just the recognition of the same structure in two different types of experience that constitutes the process of abstraction. Some people do indeed have a leaning towards abstraction, these people tend to view new situations as exemplars of classes of situations; when another such situation is encountered, the process of abstraction is completed in a flash by the instant realization of the identity of the second structure to the first. Others, with a lesser leaning towards abstractions, i.e., towards thinking in classes rather than in individual cases, will need to encounter a greater variety of situations before these situations can be joined together into a class by the realization of the common features of its elements. It is for such people that there is a very real danger of associations instead of abstractions being formed. For example, in learning mathematics, such subjects will tend to associate the symbolism of any new mathematics learnt with the particular situation in which it was learnt. It follows that if this situation is even slightly altered, it will not be treated as the *same kind* of situation (the same class of situations), and the process symbolized from the original particular experience will not be seen to apply to the changed situation.

One of the reasons why so few people really understand mathematics is because only these few can gather a sufficient degree of abstraction from the present largely associative forms of teaching. The introduction of a larger variety of mathematical experiences produces quite a different picture. All children can then arrive at mathematical abstractions, some just need more varied experiences than others and so take longer than others to form the abstractions (6, Chapters III and IV).

### 3. PRIMITIVE GENERALIZATION

The process of primitive generalization is essentially the realization that a certain type of situation (class of situations) could be considered to belong to a wider class than had been thought previously. For instance the realization that being civilized is not only the property of white cultures is a primitive

generalization. In the restricted case the elements, i.e., civilized creatures, were thought to form the class of the white race. In the generalized case it is realized that civilized creatures (elements) embrace now almost the entire human race (class). Such a step is difficult to make, cognitively because of the logical process involved, affectively because the formation of a class is accompanied by a more or less definite closure, and the re-opening of such closures disturbs the mental status quo (4, p.8). Children find generalization difficult because it requires the establishment of a relationship between classes (namely that of inclusion); children under twelve years of age find the handling of such class relationships difficult if not impossible. Adults find generalizations difficult because more often than not they have their belief-systems firmly established and they do not want their systems disturbed, as it is by reference to these systems that they are able to evaluate their environment (9). It would appear to follow that generalization is a process found much more rarely than abstraction. In the sense defined in this article, abstraction takes place more or less from the cradle onwards; we are soon forced into classifying situations and even establishing associative bonds between classes of situation (e.g., the putting on of a certain type of garment by Mother is associated with subsequent absence of Mother). These classes get more and more complex, enabling us to make ever finer distinctions between types of situation (e.g., if Mother takes her coat and her bag, she is likely to be away longer than if she just takes one of these). Mathematical abstractions are in no way essentially different from these other earlier abstractions, they are merely more complex. The difference begins with the introduction of generalizations; these on the whole take much longer than abstractions to complete and it is their dynamics that we shall now consider.

The elements of the classes involved in a primitive generalization are all of a kind, the generalized class merely contains more of them than the restricted class. When we pass from white men to any men, from small numbers to any numbers, we generalize by including more men or more numbers. If the restricted class is not too firmly closed, this will not be a difficult process except in so far as the generalized class may be less tangible. To realize that a property like

$$A + B = B + A$$

applies to *all numbers*, it may be necessary to have dealings with a great many numbers; again some will need less, some will need more variation of the variables A and B before they realize in *full generality* that the inversion of the order of the terms in a sum does not affect the sum *whatever two numbers* are chosen. For generalization to take place it is then necessary to vary the same kind of thing in a situation in order to point to as large as possible a class in which the situation is applicable. For abstraction to take place, it is necessary to vary the kind of situation, the "same-ness" of all of which is the

endpoint of the abstraction process. In other words generalization requires quantitative variation, whereas abstraction requires qualitative variation.

In mathematical learning these processes go on side by side, suitably fitted into one another. For example, the *abstraction* of the class "squares with sides parallel to a frame" needs to be followed by its *generalization* into "any squares." If a closure has been allowed to develop around the class of "squares with sides parallel to a frame," the process of generalization will be more difficult, as the closure will have to be re-opened by focussing attention on all possible squares. This difficult logical process can be largely avoided if the class is originally formed in the more general form. The simultaneous variation of all possible mathematical variables inherent in a concept will lead to greater generality than a partial variation, thereby saving labor by cutting down logical processes (such as generalization) and substituting for these the construction of classes (abstraction). In our example if the sizes as well as positions of the squares relative to the frame are varied, then the class of "any squares" is constructed without a restricted class being constructed first. In this way a saving has been effected in logical labor. Sometimes it is, of course, impossible to avoid the necessity to generalize, as both classes are "current idiom" in the language being learnt. Such is for example the position with regard to squares and rectangles. The class of rectangles is clearly a primitive generalization of the class of squares; here the re-opening of the closure around the class of squares may be very difficult to achieve, and in fact the generalization often does not take place at all. For such people squares are simply not rectangles, squares and rectangles forming two distinct classes with no relationship between them.

It can safely be assumed that generalizations, just as abstractions, take place as a result of experience. By experience we must understand either purely mental experience or experience consisting of contacts with the outside world. The dynamics of the process is similar to the dynamics of abstractions; the difference is merely in the content, namely that the "play things" must here be actual classes instead of elements of classes, since the desired result is a relationship between classes. As classes cannot really be "played with" except through their elements, situations must be devised in which these elements are forcibly perceived as belonging to the classes of which the logical structure being aimed at (here inclusion) will consist. The third stage in the cycle will have to contain a modicum of logical realization, although the implicit type of thinker will still seek this in practical situations which will mirror the logical structure perceived at the moment of insight.

Generalizations take much longer to complete than abstractions. The former can be thought of as rather long waves, interspersed by a lot of small waves of abstractions. Naturally some abstractions take longer to complete than others and there may be some abstractions which take longer to complete than some generalizations. A generalization which seems to take a long time

is the one from the initial class of small familiar numbers to "any number." If this generalization does not take place, algebra cannot possibly be understood. But even this generalization can be accelerated by providing more generic experiences to do with numbers, i.e., experiences which are seen to be valid for "any number;" the class of "all numbers" of which "any number" is a prototype will then become an operational class, and the process of generalization can take place. Similar difficulties are faced in passing from particular functions to "any function," from particular operators like multipliers, differentiations, integrations, etc., to "any operator." Before these later and more difficult generalizations become possible, a certain amount of abstraction work needs to be done on the "elements" of these classes. For example it must be realized what it is that is in common to functions like  $x^2$ ,  $\sin x$ ,  $\log x$ ,  $[x]$ , . . . etc., as well as to functions not expressible in terms of easy formulae; once this has been done, functions then become "all of a kind" and generalization becomes possible, as classes can now be formed of which functions are the elements. The abstraction of the common property or properties from the diverse individual properties of mental objects (objects of thought) is thus seen as a necessary preliminary to the formation of classes with these objects as elements.

It may be objected that, at least in the mathematical examples cited, the restricted class from which the generalization is said to take place to the generalized class, is not really a class at all, but a mere random collection of numbers or other mathematical objects which a certain subject happens to have come across. Therefore, it may be argued, primitive generalization is really no different from abstraction, as it is the formation of the entire class containing the elements being considered. The truth of the matter is that the abstraction necessary to recognize the eligibility of the elements for the formation of classes, and the generalization of realizing just how extensive these elements are, might happen at almost the same time and so appear as one process. Abstraction is necessary to determine just what kind of things we are having to deal with, generalization (in the primitive sense) being the process of determining just how far these "things" extend. Whether we regard our initial restricted class as a class or as a collection of elements, does not alter this difference between the two processes. It will be seen when we consider mathematical generalization, that there the class relationships between well-formed classes are truly the focus of the whole process.

#### 4. MATHEMATICAL GENERALIZATION

A class is said to be a mathematical generalization of another if it contains an isomorphic image of the other.

In the mathematical field two classes are said to be isomorphic if (i) their elements can be paired off so that every element in one class has a unique

"mate" in the other class, (ii) if  $x, y, z, \dots$  are members of one class, and their "mates" in the other class are  $x', y', z', \dots$  then if a certain operation carried out on  $x$  and  $y$  yields  $z$  in one class, there must exist in the other class another operation, which when carried out on  $x'$  and  $y'$  yields  $z'$ , and this must be so for all pairs and all operations taken into account in the isomorphism. In other words whatever you do in one class, must have its exact counterpart in the other class to the extent that whatever you do to the elements in one class, a corresponding thing will happen to the mates of these elements in the other class. As the pairing is reciprocal, this correspondence holds both ways. Each class is an exact replica of the other functionally speaking, or perhaps more appropriately, structurally speaking; what is different in them is the content.

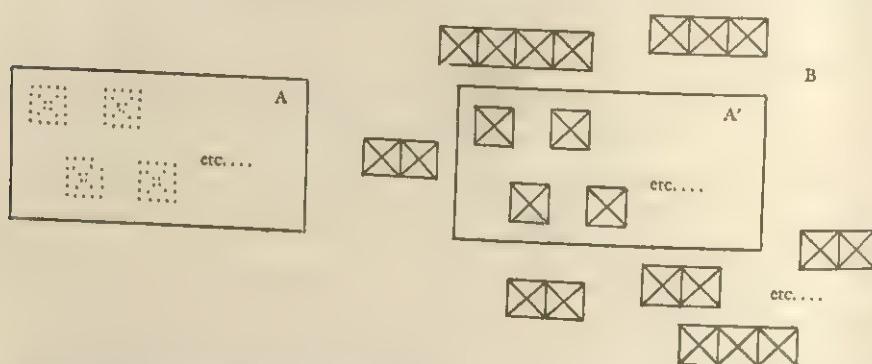
Such an isomorphism is for example assumed to exist between the electrical impulses passing up and down our nervous system and our "thinking," where the latter includes all possible mental processes. To every mental state is assumed to correspond a neurological state and vice versa. To every change of state (operation) in one, corresponds a change of state in the other. Another example, less exact, as we must assume both populations to be infinite, would be, for example, two countries which have the death penalty for murder. In one country if  $A$  murders  $B$ ,  $A$  if found out is executed. In the other country if  $A'$  murders  $B'$ ,  $A'$  if found out is executed. It is not the same people who get executed, yet the structure of the corresponding events is the same. A mathematical isomorphism exists, for example, between all fractions of the form  $p/q$  where  $p$  and  $q$  are integers but  $q \neq 0$ , and all recurring decimals (we should need to write finite decimals in the form with 9's recurring) in relation to all four fundamental operations.

Let us now pass on to mathematical generalization. Take, for example, the passing from rational numbers to real numbers. A rational number may be defined as a fraction  $p/q$  where  $p$  and  $q$  are integers and  $q \neq 0$ . A real number may be defined as any infinite decimal (recurring or not). The rational numbers as here defined are isomorphic to recurring decimals, and the class of recurring decimals forms a part of the class of infinite decimals recurring or not. Therefore, the rational numbers have an isomorphic image in the class of real numbers; the class of real numbers is therefore a mathematical generalization of the class of rational numbers.

Another obvious example is the one quoted in the introduction. The class of positive and negative integers (or the entire class of directed numbers) is a mathematical generalization of the class of natural numbers. Natural numbers have no direction; it has no sense to say that there are plus two objects on the table, the number of objects in a collection is an attribute of the collection without any direction being attached to it. But as soon as we talk about 2 miles in a certain direction, 2 degrees warmer, 2 m.p.h. faster, the number two is used in an extended sense with a direction associated to it, an opposite

direction being in each case assumed to exist. It is for the mathematical description of such situations that directed numbers serve. The four operations are defined over these directed numbers in the customary way, and it is clear that if we restrict ourselves to one of these directions only, we shall be in the same *structural situation* as in the case of natural numbers. It is important to realize that this identity of structure does not mean identity of content, and natural numbers will remain objects of thought different from positive integers even though they have the same properties. As the class of natural numbers is isomorphic to a subclass (i.e., to the class of positive integers) of the class of positive and negative integers, the latter class is a mathematical generalization of the class of natural numbers.

It should be clear that to achieve a mathematical generalization it is necessary to have a very good knowledge of the three classes involved, any abstractions involved in the construction of their elements must be assumed to have taken place, the isomorphism between the two relevant classes must be realized, this being an advanced form of the abstraction process, and lastly the logical relationship of inclusion between the relevant classes must be realized.



To make the process clear, the reader may refer to the accompanying schematic diagram. The requirements are then as follows:

- (1) Abstraction processes must be completed so that the structure of the individual elements of all the classes involved is realized.
- (2) The three classes A, A' and B must be well formed.
- (3) The isomorphism between A and A' must be established.
- (4) The inclusion of A' in B must be realized.

When all the above mental processes have been completed, it is still necessary to integrate them into the structure schematically represented in the figure. It is only when this integration has taken place that the mathematical generalization has been completed.

It should be clear from the foregoing that mathematical generalization is a far more complex process than abstraction, and that a great deal of thinking in terms of classes is necessary for the completion of such a generalization.

But here again experience is the key to the difficulty of the problem. Practice in the abstraction process can be carried on to practice in more and more complex isomorphisms, until there develops a kind of mental set for the search for isomorphisms. Class inclusion can likewise be practised on classes that occur in everyday life. In other words if all the activities listed under (1), (2), (3) and (4) are well practiced, the ground will be prepared for acts of mathematical generalization.

We close this section by a few more mathematical examples to remind the reader what, in virtue of the foregoing, is to be understood by such phrases as "more abstract" and "more general."

Let us take a few illustrations familiar largely to mathematicians. For example, a group is more abstract than a ring, because the structure described by a group, containing only one operation and its inverse, will fit many more varied mathematical situations than a ring, where a second operation is introduced. Likewise a ring is more abstract than a field, as a field requires the existence of the inverse of the second operation as well, and such a more restricted situation occurs in mathematics less often. In other words when we say "more abstract," we mean that more, seemingly rather different, situations may be described at the same time. As more elementary examples, we can say that real numbers are more general than rational numbers, complex numbers are more general than real numbers (mathematical generalizations), continuous functions are more general than differentiable functions, measurable functions are more general than either of these (primitive generalization). Getting more abstract then means extending the field of applicability, getting more general means extending our field of activity.

## 5. MATHEMATICAL THINKING

Abstraction and generalization, whether primitive or mathematical, form only a small part of the sum total of mathematical thinking. Logically speaking, there are many more possible class relationships besides inclusion. Two classes may be in any of the following relationships: one class includes the other, the two classes are identical, the two classes overlap, the two classes are distinct. As classes may be defined by the heaping together of properties which certain elements must have, it is possible to overdo this heaping so that there are no elements at all that satisfy all the properties. In this case the class is said to be empty. Some of the most difficult mathematical thinking is about deciding whether a class is empty or not. When a mathematician succeeds in proving that a certain class in which he is interested is not empty, he is said to have proved an existence theorem. Mathematical battles have been raging for the last hundred years about what exactly constitutes a proof of existence. It is not here proposed to go into the philosophical differences underlying these battles (the so-called formalist-intuitionist controversy), but merely

to adumbrate by their brief mention how creative mathematical thinking is in a state of flux at the highest levels. It must be added, however, that these battles are only joined about the foundations of mathematics; in the "workshop," i.e., in the day to day researches of ordinary mathematicians, work seems to go on in remarkably the same sort of way everywhere, far from the din of battle in the foundations. However, when examining the psychological processes in mathematical thinking, it is hardly possible to ignore the differences, although the similarities will also be useful pointers.

The essence of the kind of thinking leading to mathematical discovery is approximately describable in the three stages referred to earlier. During the first stage, the mathematician is given a structure which takes him so far and no further. He then plays a kind of rather random mathematical game of try this and try that to see how the thing works. After a while this is followed by a more purposeful build-up; the threads of mathematical evidence are picked out, sorted, and a kind of direction is discerned in this evidence (2). This direction is followed; the mathematician is here usually guided by some "hunch" which leads him to pile up some sort of a provisional mathematical heap. He has now tracked down his prey, but he must take a very good look at it before he decides that it is worth a shot. In other words, having done his construction, he now has to do his analysis. This is where any relevant class relationships are carefully and critically examined; this is cool reason operating after the heat of excitement in tracking down the mathematical prey.

In the construction stage abstraction may play a crucial part. The realization that: "This is just the same structure as that one over there, although they appear at first sight to be so different," i.e., an insight into an isomorphism is often a necessary step before a really new, original construction can be made (7, 10). Having constructed the new mathematical structure, the logical (or analytical) work must follow, of which mathematical generalization is but one example. When the thought cycle is complete, the structure is seen as a whole as well as the set of the relevant relationships of its parts.

The picture would not be complete without adding a word about the role of symbolism itself in the thought process. The structures now being considered by mathematicians are so complex that it would be quite impossible to dispense with symbolism. The symbols remind the mathematician of what it is that he is really supposed to be thinking about; but more than this, the mechanisms of some of the well learnt mathematical techniques make it possible for the mathematician to skip a great number of steps, in other words he allows the mechanism to do a part of the "thinking" for him. The symbolic mechanisms in this way act as primitive computers, accelerating the thought process, saving the mental energy for those parts of the process which are not mechanical, which still have to be put together for the first time. A complete theoretical as well as practical mastery of the techniques is essential for this acceleration to function, as otherwise it will not be possible to interpret the

results reached at the endpoint of a mechanical stretch of the mathematical road.

The mathematician's philosophical standpoint will largely determine his attitude towards his symbols. If he is a formalist, he will not regard his symbolism as expressing the quintessence of a great number of different situations, as has been suggested in this article. For him a mathematical symbol has no content, no "meaning"; it is just part of a structure, the structure itself being quite hollow, although it must of course be filled up when it is applied. Such a formalist will probably be quite satisfied with what we have termed association, and will not feel the need of the qualitative variations we have described as being the essence of successful abstraction. The truth of the matter probably is that our formalist is a quick abstracter, thinks readily in terms of classes rather than in terms of particular events. Thus he will personally not stand in need of much variation of the situations mirroring the same structure, as he will see the structure almost straight away. This may in fact be one of the circumstances which has permitted him to become a formalist, as for him, without the richness of the variations referred to, the structure he sees will appear as rather empty. As the teaching of mathematics is today either based on the imparting of efficient performance of processes in certain given circumstances, or on logical thinking, the constructive thinker does not have much chance of understanding mathematics, much less to become a mathematician himself. This may be why constructivist (or intuitionist) mathematicians are so few and far between. If the constructive processes of building classes, particularly isomorphic ones, were allowed more space in our mathematics syllabuses, we should probably find the balance much more even between the two types of thinkers amongst our mathematicians.

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## APPENDIX

*An arithmetical example of the abstraction—generalization process.*  
Let us recall the following:

(1) A situation is recognized as *abstract* if other situations of the same structure which at first appear different, are classed together in one class with the first situation.

The abstraction consists of the sorting out of the common properties of the situations with the same structure and of the recognition of those properties of the situations which are irrelevant to the structure abstracted (usually referred to as *noise*).

(2) A primitive *generalization* is the extension of the class to which a certain attribute applies. In this appendix we shall refer to this as generalization.

In other words we shall regard abstraction as *class formation*, and generalization as *class extension*.

Our arithmetical example will be the well known concept of place value whereby in the Hindu-Arabic system of numeration the position of a numeral helps to determine the number it indicates.

The place value concept can be expressed algebraically by means of the function

$$F(x_0, x_1, \dots, x_y, y, z) = x_0 + x_1z + x_2z^2 + x_3z^3 + \dots + x_yz^y$$

where  $x_r < z$  for all  $r = 0, 1, 2, 3, \dots, y$ .

We shall denote the above function by  $F(x, y, z)$  for short.  
The usual method of teaching assumes:

- (i)  $z = 10$ , i.e., a constant, and at first  $y = 0$  or 1, later  $y = 2$ , then 3.
- (ii) a very thorough variation of all  $x_r$  being considered.
- (iii) that the concept may be taught by means of manipulation of symbols only,  $y = 1$  being sometimes an exception (e.g., bundles of ten matches).

If the structure is to be as general as possible, then it should be recognized that it is applicable to the whole range of values of the variables in the function  $F(x, y, z)$ . If it is to be abstract, then the structure should be recognized in whatever guise it may appear. To achieve the former, variation of all the variables over as wide a range as possible would seem to be required. To achieve the latter, more than one way of presenting the structure in concrete form would seem to make it a priori more probable that it will be recognized in yet other forms.

In Figures 1 and 2 will be found two types of situations devised to promote abstraction, each type embodying as full as possible a variation of the relevant variables to promote generalization.

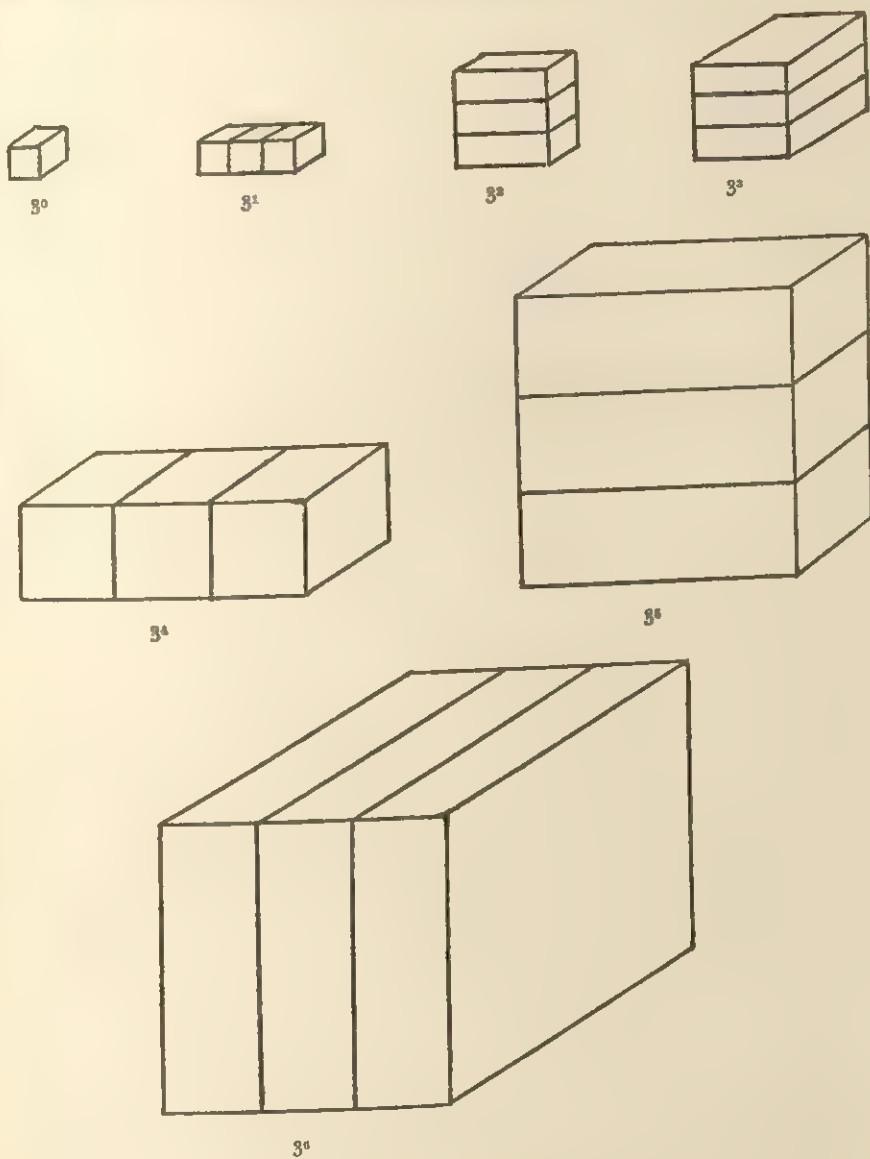


Figure 1. First type of situation.

Mathematical experiences may be had with a number of the shapes above. They are representations in rectangular solids of  $F(x, y, z)$  when  $z = 3$  and  $y$  from 0 to 6.

Clearly such series of blocks in geometrical progression can be provided in any base, and so variation in the variable  $z$  may thus be provided.

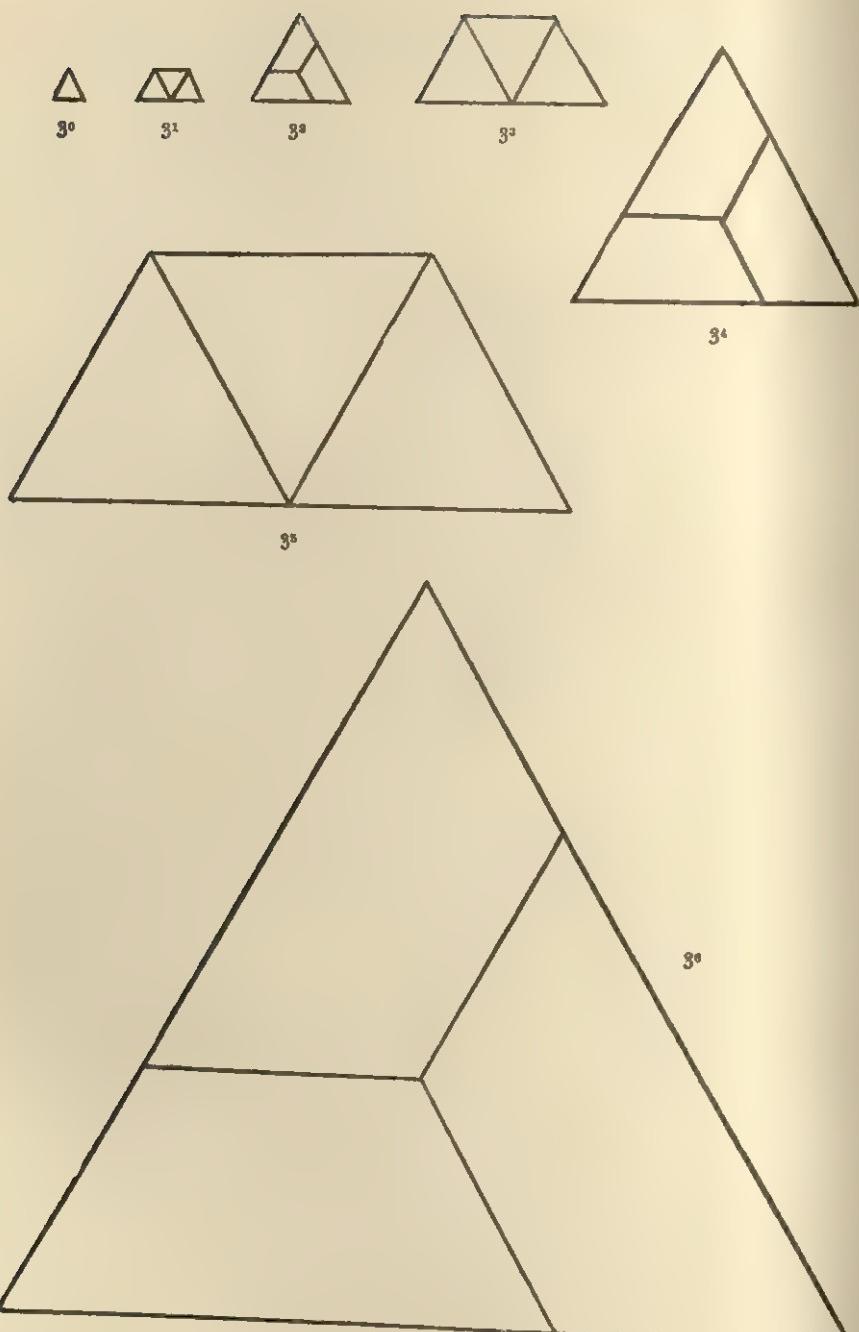
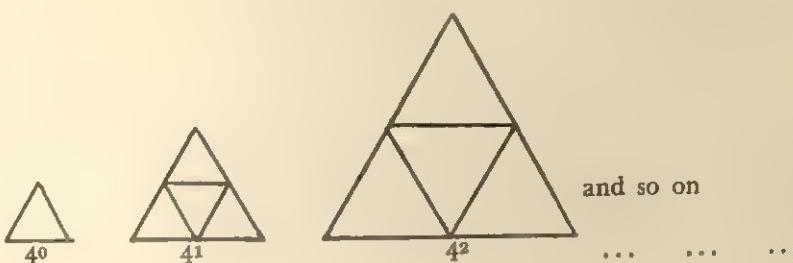


Figure 2. *Second type of situation.*

Isomorphic situations to the ones obtainable with the blocks in Fig. 1 may be obtained by means of mathematical experiences with the triangular and trapezoidal figures. Here  $z = 3$ , and  $y$  may be anything between 0 and 6.

An isomorphic situation to the one of the first type could be constructed for  $z = 4$ , by building up a series of triangles



and  $y$  can be increased up to the limits of physical practicability.

A second type situation embodying  $z = 6$  can be constructed on the lines of the previous example, where each piece is double the thickness of the previous piece. Similarly  $z = 8$  can be embodied by doubling the thickness of successive pieces in the situation given for  $z = 4$ . In similar ways  $z = 9$  and  $z = 12$  can be embodied in quite natural ways.

When the isomorphism between the two types of situations has been established, something has been abstracted from the two types of situations which is common to both types. A certain amount of noise has been eliminated. Some noise will, however, remain. For example children may believe that what they have learned has to do with manipulating pieces of wood although the shapes of the pieces, they will now not regard as very important. To eliminate more noise, the field of operations must be extended to yet other *types* of situations. For example a lot of small match-boxes can be used, each box having three matches in it. These can be put in larger match boxes, each large box having three small ones in it. The three large boxes can be tied round with elastic bands. These bundles can then be put in yet larger boxes etc., up to the limits of practicality. Verbal problems serve as yet another kind of situation for extending the field of operations.

Generalization has taken place if the existing situations are readily extended to imaginary situations with larger numbers (or simply different numbers) which have not served as exemplars. Generalization may or may not be explicit. If it is explicit, then it can be symbolized in the general form; if it is only implicit, then the symbolism will only be meaningful in the particular form. The symbolism is in any case not fully operative, unless the situation symbolized can be recognized from the symbolism, i.e., there must be two way traffic between the generalization and the symbolization. The process of passing from symbols to real situations may be termed interpretation. The symbolism may or may not represent an abstraction. If the symbolism is arrived at as a way of writing down or otherwise fixing or communicating the common properties of different situations of the same structure, then the symbolism symbolizes an abstraction. Otherwise it may only symbolize a generalization along a very narrow front, or it may not even symbolize a generalization at all, it may only symbolize particular situations not yet generalized. In this case the symbols are just used as a kind of short hand for the subject's mother tongue for describing as yet unconnected experiences.

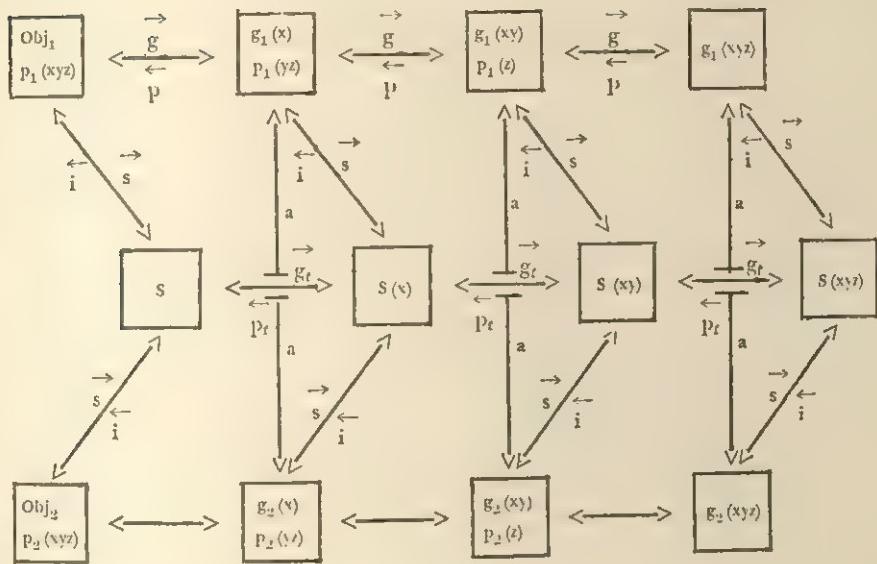
For a generalization to be effective, the reverse process of particularization should also be readily performed. The generalized structure should patently include the more particular structures out of which the general structure was formed, and these should be able to be reached with ease. For example, it should be possible to recognize ordinary arithmetic as a particularization of the general function  $F(x, y, z)$  in the case when  $z = 10$ . This should be able to be further particularized to the case for example of  $y = 2$ , i.e., to 3-digit numerals in base ten. These again should readily be particularized by recognizing a numeral like 156 as an exemplar of the more general picture of a 3-digit numeral in the base of ten.

Generalization may, of course, take place formally. The class of numbers to which a certain structure is applicable may be formally extended by a kind of playing with the symbols. Formal substitution of elements of the previous, restricted class, will give rise to a formal particularization. For this kind of generalization to be considered as mathematical thinking, it must be possible to interpret the generalization in a relevant concrete situation. When the generalization has lost sight of the content being generalized, then it becomes a useless and empty game, and will soon be given up. It must be remembered that here, in the higher reaches of mathematics, by content, we might mean some previous structure, whose content is still some previous structure, and the final content of real experience behind it all may be so far away that we may ignore it. This rarified game is all very well for the expert mathematician, who can at any moment retrace his steps to the Reality Entrance of the labyrinth of his own making, but we should do well to initiate children bit by bit into the mysteries of such games if we do not want them lost in the maze. Formal generalization is a kind of leap into the maze, without the thread which will ensure that we shall find the way out again.

The above considerations appear to lead to the type of cognitive organization of mathematical learning shown in Figure 3 as exemplifying the abstraction—generalization process.

It is possible of course to generalize more than one variable at a time. That means that several of the g-positions may be skipped. In the reverse direction, it is possible to particularize several variables at once. It should also go without saying that there could be more than two types of situations. The "cognitive map" in Fig. 3 is still a relatively simple one. Logical analysis, for example, is entirely left out. When a generalization has been made, "logical" paths would lead to what we might call analytical insights, as opposed to the almost purely constructive or inductive thinking described here. The "cognitive map" could be considered as a cell, forming part of an organic learning process, in which there are cells with different structures, each structure being adapted to the particular kind of learning which it serves to accomplish. Perhaps such an organic model might serve as a better model for developing learning theory than the current S — R models, even when based on elaborate stochastic theory of probable chains of events.

Figure 3. Scheme of a simple "Learning Cell."



## Key to "Learning Cell."

Arrow above symbol indicates direction of process.

$\rightarrow$   
 $g$  = generalization,

$\leftarrow$   
 $p$  = particularization,

$\rightarrow$   
 $s$  = symbolization,

$\leftarrow$   
 $i$  = interpretation,

$\rightarrow$   
 $g_t$  = formal generalization,

$\leftarrow$   
 $p_t$  = formal particularization or  
 substitution.

$a$  = abstraction.

The variables  $x$ ,  $y$ ,  $z$  are used to denote the variables particularized or generalized. The frames denote positions reached.

$S$  denotes symbolization of objects and of particular operations on such objects not yet generalized.

# Medical Advice on Child Rearing, 1550-1900

*Combining the techniques of the psychologist and the anthropologist, this paper emphasizes the dimension of time in our American child rearing patterns. Setting forth the changes that have occurred in the areas of oral, anal, sexual, dependency and aggression training, the author proceeds to suggest some important causes and effects of these changes.*

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IN A LARGE SOCIETY every child knows many kinds of people. If personality could be selected from a rack like a suit of clothes he would have an almost infinite variety from which to choose. Usually, however, his adult personality lies safely within the boundaries defined by his culture. What, then, is the mechanism which makes an adult American react differently from a Japanese? To what extent do adults from different cultures share common reactions? What basic necessities does a particular child share with other children everywhere, and how does his particular society deal with these inevitable needs in order to recreate itself in every generation?

During the first part of the twentieth century, psychology offered the most relevant answers, simply because psychology is deeply concerned with the development of personality. Following Freud many psychologists framed their studies of personality with reference to three basic biologically conditioned drives characteristic of all human beings: the oral, anal and sexual. Behavioral psychologists identified secondary drives such as dependency and aggression, which they believe to be equally characteristic of the human condition. All societies are forced to deal with these areas of behavior, since all children must

eat, excrete, and learn their sexual roles. All babies are dependent, and frustration generates some aggression in all societies. Psychologists suggested that the way a society permits these drives to be expressed, and the way the individual learns to relate himself to them are the principal determinants of personality.

But for a long time psychologists worked within the framework of Western European culture, and it gradually became clear that they could not draw conclusions about human reactions to environmental conditioning unless they could examine these reactions in a wide variety of environments. They were, in effect, trapped by the limitations of their own culture. So it seemed logical to turn to anthropology for further information.

Unfortunately, anthropological data were often unrelated to psychological problems and frequently proved to be of little use to the psychologist, but because it was important to examine these new problems, the emphasis of anthropological field work began to change. The field worker began to spend less time measuring skulls and more time watching babies and, as a result, field reports about the five basic drives began to accumulate for many different cultures. The data were of two kinds. First there were observations about adult personality in a particular society. The field worker noted the values, beliefs and techniques of society as indices of adult personality patterns. But at the same time he had become interested in recording the ways that a society handled the basic drives when they first appeared in the individual, and so he studied the child-rearing patterns of the society. New techniques of field work began to develop and finally the Human Relations Area Files were evolved in order to summarize and codify material from many cultures. In these files child-rearing variables and certain measures of adult personality are recorded from approximately one hundred societies. These files are available at several universities and are being constantly expanded as new material accumulates. This enormously simplifies the work of the psychologist who wishes to use cross-cultural material in testing his hypotheses.

The present study is closely related to other cross-cultural studies of personality, but with the significant difference that it is concerned with the past instead of the present. Most of the societies described in the Human Relations Area Files still exist. A few are societies which have recently been modified beyond recognition, but all of them are described at a particular time without reference to their past development. The present study makes use of the techniques and assumptions discussed above but emphasizes the dimension of time. If child-rearing practices determine the development of personality, it is immensely interesting to discover the antecedents of our American child-rearing patterns because these cast a new light on the sort of ancestry we had. But there is another reason for making such an historical study. Child-rearing patterns have changed markedly in Anglo-American society during the past

three centuries. Because of this some light can be thrown on the reasons for change in the area of child-rearing.

This is not history as the historian knows it. An attempt is made to document only one aspect of the past. There are probably no societies in the world where past adult behavior has been more carefully studied than our own, but child-rearing patterns, as conceived by the cultural anthropologist, have been almost entirely neglected and historians have never concerned themselves with toilet training in Cromwellian England, or weaning at the time of George the Third. This study attempts to fill the gap.

In a sense this is a developmental ethnography. Most ethnographers study both children and adults in a culture at a given moment in its history, but this study takes a longitudinal slice of a culture and examines only child-rearing recommendations in successive periods.

The anthropologist in the field talks to people who live in the culture he is studying. The reports of these people and the anthropologist's own observations form the basis for his judgments about the society. Since this study is concerned with the past, interviews and direct observation were obviously impossible, and it was necessary for books to serve as informants, and libraries to take the place of village squares. Many kinds of books about children were sampled and those authors who seemed best able to tell what was needed were finally selected. These proved to be the doctors and medical men who were particularly interested in the physical care of young children and who described their beliefs and techniques for the benefit of parents and other lay readers. These were the most comparable sources available through the entire period. (See list of sources at end of article.) It is in the books by these men that one can find the richest source of material about the kinds of child-rearing practices under investigation.

It should be made very clear that this study is concerned with *advice* on the subject of child rearing. The sources used do not provide the basis for definite conclusions about the actual practices of the various periods although there is some reason to believe that they do give evidence of what the actual practices were. Sometimes an author comments on "current practices" or phrases his advice in terms of "the mistakes most parents make." The actual existence of such objects as cradles and nursing bottles is sufficient evidence that they were used, and other studies based on other kinds of sources have indicated the existence of many of the practices discussed. It is usually true that the advice of experts gradually becomes general practice in the literate upper middle class and that this group sets the patterns which are taken over by other segments of a society. Many of the books used as sources were published over long periods of time and this fact increases the likelihood of their having had real influence on the lives of real children. Finally, it is important to remember that the character of the advice itself throws light on many of the problems

and prejudices of a society, quite apart from any relationship it may have to the way children are actually reared. Analysis of the changes in expert opinion is also of value to cultural anthropology.

The selection of sources for this study was determined by the primary interest in American child-rearing patterns and their antecedents. The period considered is from 1550 to 1900. All the books used, except one, were either originally written in English or translated into English. No books by doctors, about children, for laymen, originated in America until nearly 1800 and so English sources were used until that time. After 1800 only sources published in America were used, although these too were sometimes reprints of books by European authors.

In selecting areas of child-rearing for investigation this article employs the oral, anal, sexual, dependence and aggression categories which have become standard tools in the field of cross-cultural anthropology. In order to determine which specific areas to examine in detail, reference was made to *A Field Manual for the Cross-Cultural Study of Child Rearing*.<sup>1</sup>

In order to make statistical treatment of this material possible, the time span covered by the study has been divided into eleven periods. The first, from 1550 to 1650, is long because sources in this period are scarce; only four are available. After 1650 the time is divided into intervals of twenty-five years. All the books known to have existed over an extended time are included in each of the periods during which they were published. The number of sources in each period ranges from four to eleven and the total number of books considered is thirty-nine. In this way it has been possible to compare the opinions current in one period with those of another.

Using these methods, this study presents new material on child rearing in the Anglo-American tradition. See Figures 1-12.

The material presented in the following charts makes it clear that there was a dramatic change in the character of the advice given about child-rearing, a change which took place rather abruptly in the middle of the eighteenth century. The first step will be to describe that change in terms of the five behavior systems outlined above. For purposes of this discussion, the time from 1550 to 1750 is listed as the "first period" and the time from 1750 to 1900 as the "second period."

In the first period all the sources believed that mothers should nurse their own babies if possible, but that, should the mother be unable to nurse, a wet nurse should be employed. The nursing period was to last for approximately two years, and weaning was to be a gradual process. Babies were to be fed when they were hungry. These represent permissive attitudes towards oral training. Thumbsucking and pacifiers are never mentioned in this period

<sup>1</sup> J. W. M. Whiting et al., *A Field Manual for the Cross-Cultural Study of Child Rearing* (New York: Social Science Research Council, 1953).

Figure 1

% of those reporting on this subject who believed in giving the newborn a *purge* as a matter of course.

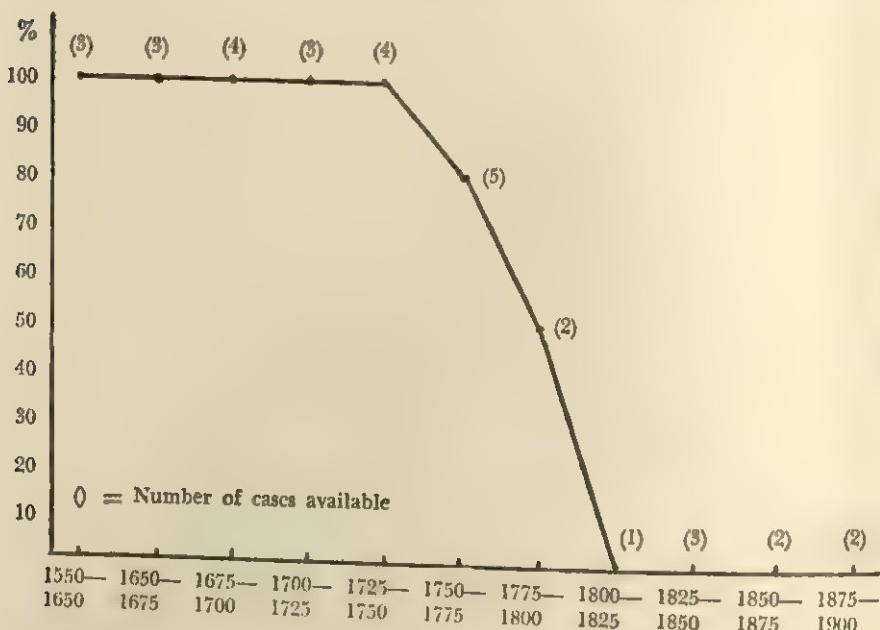


Figure 2

% of doctors reporting on this subject who limit times of feeding by *schedules*

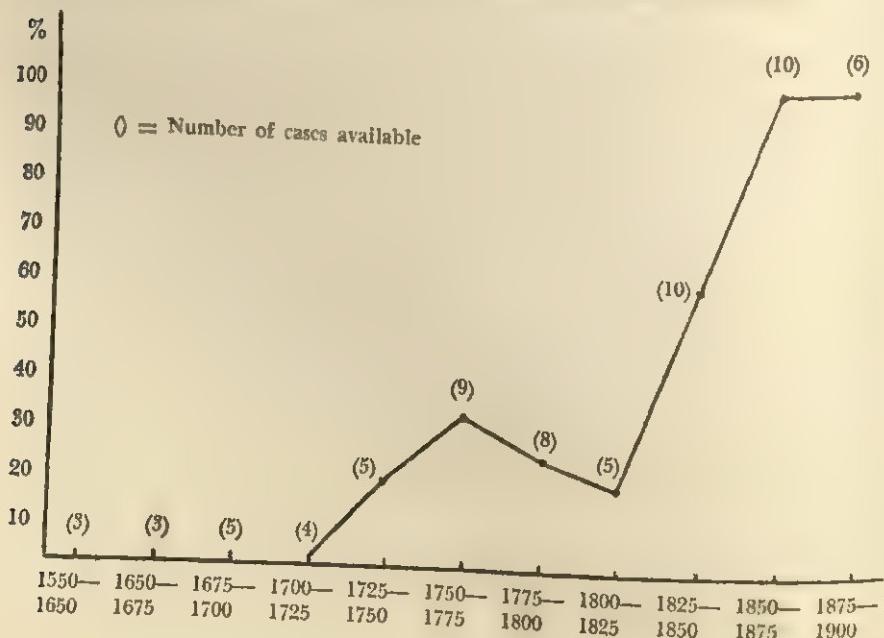
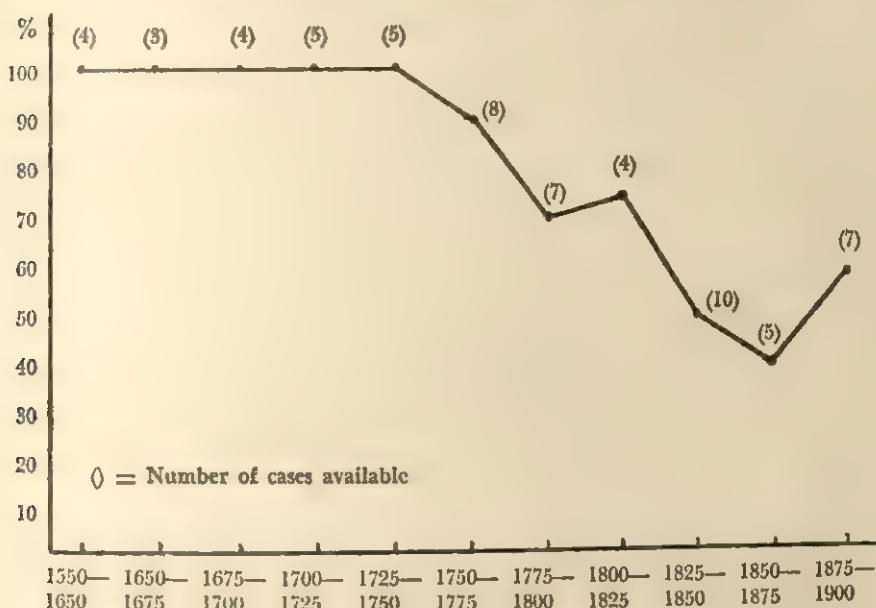


Figure 3

% of sources reporting on this who favor wet-nurses as alternative to mother's milk.

Figure 4  
Age of Weaning

● 4 yrs. ● 4 yrs. ● 4 yrs.

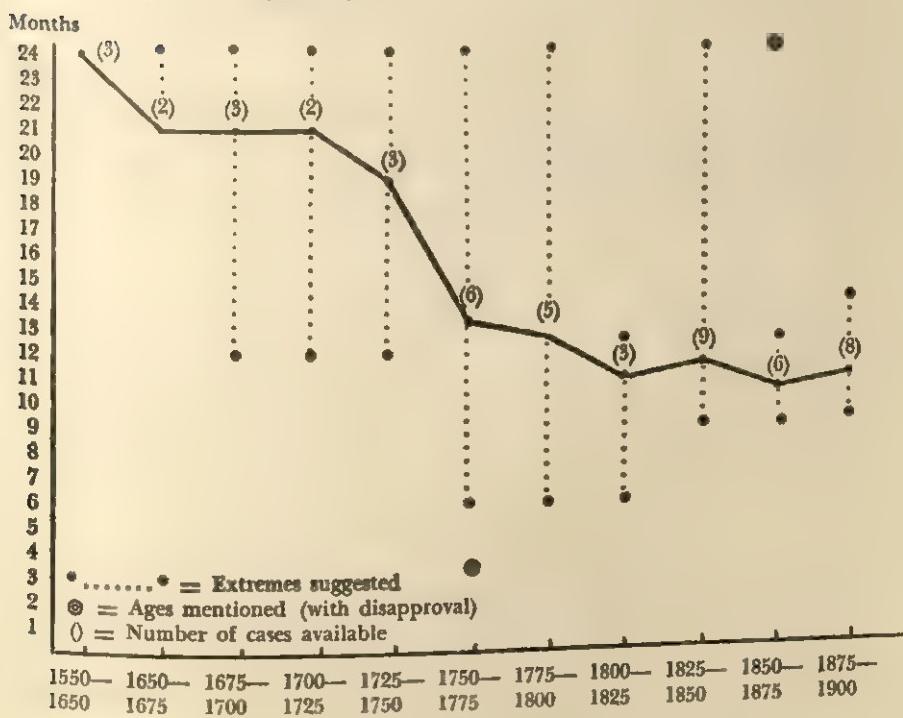


Figure 5

% of those who mention the subject who approve of *cradles*.

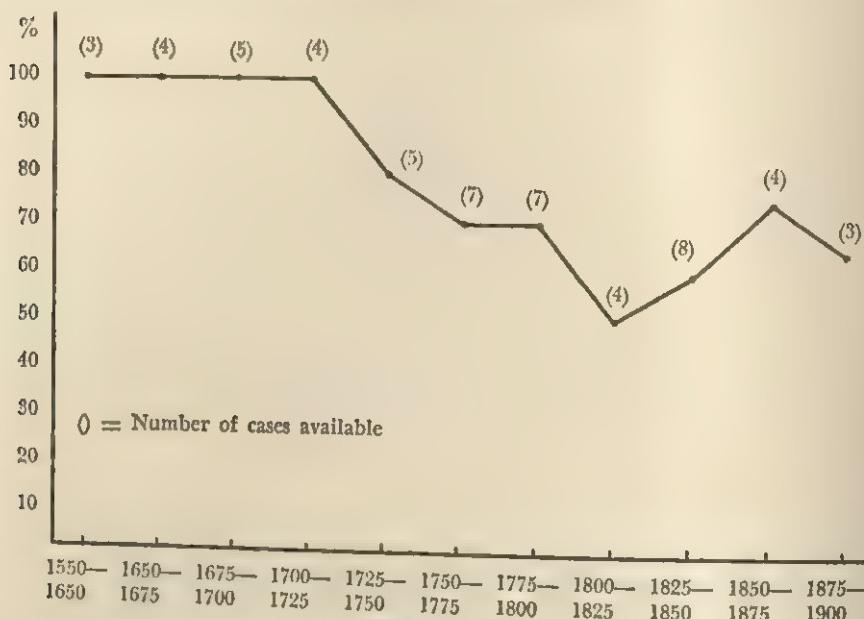
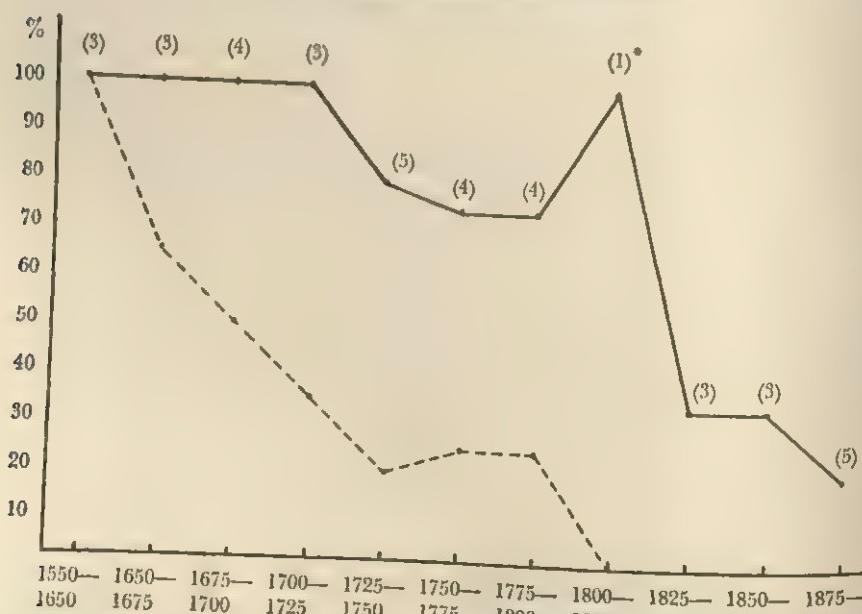


Figure 6

% of doctors (who mention) who consider teething a dangerous disease —————  
 % of doctors (who mention) who suggest magical cures for teething ······



\* The fact there is only one case here doubtless gives a false impression of the curve.

Figure 7

% of those reporting on this subject who favored *cold baths* after infancy ———  
 % of those reporting on this subject who favored baths to "harden" the child - - - - -

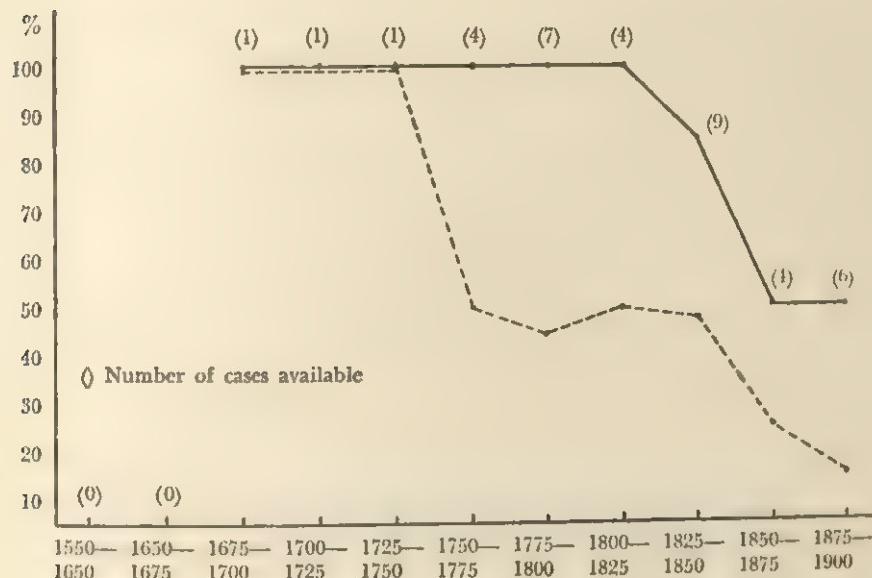


Figure 8

% of doctors reporting on this subject who favored *swaddling*

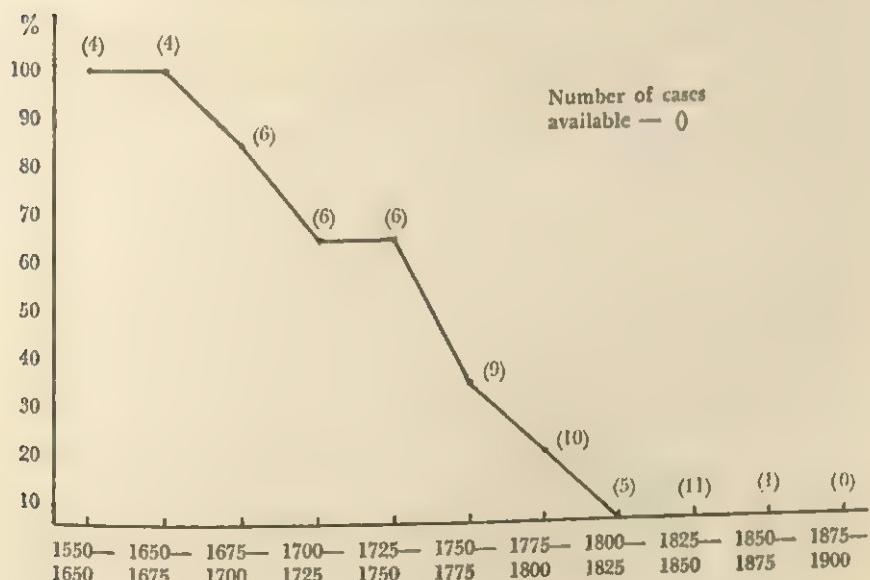


Figure 9

% of those who discussed *temperature* who stressed keeping the infant warm.

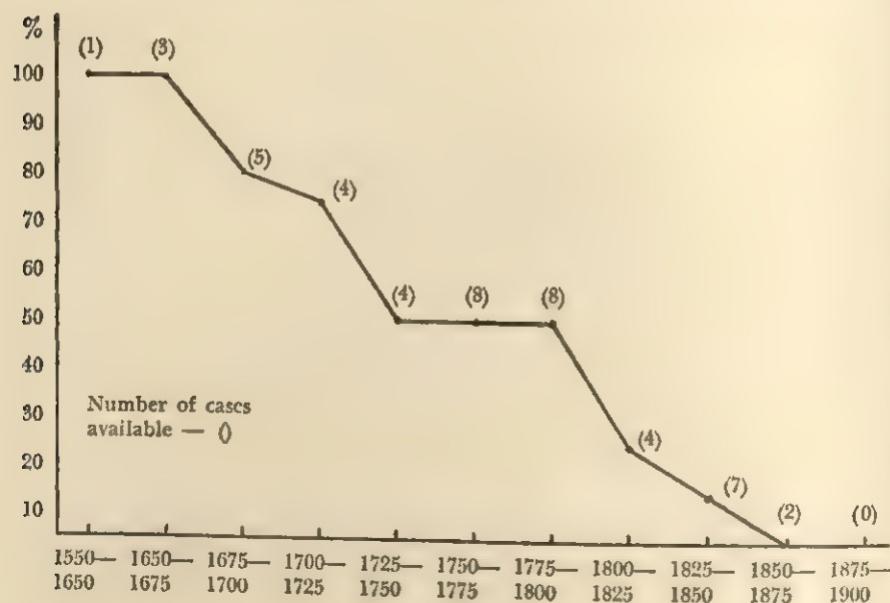


Figure 10

% of total N in period who mention *sex-play* among children (all oppose) —————  
 % of total N in period who mention *masturbation* (all oppose) ······

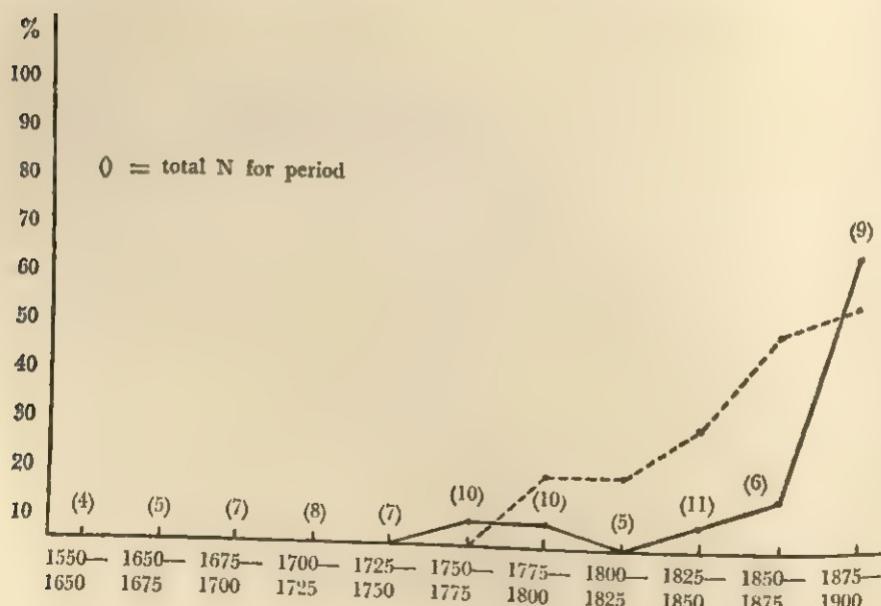


Figure 11

% of total N who show *eagerness for child to become independent.*

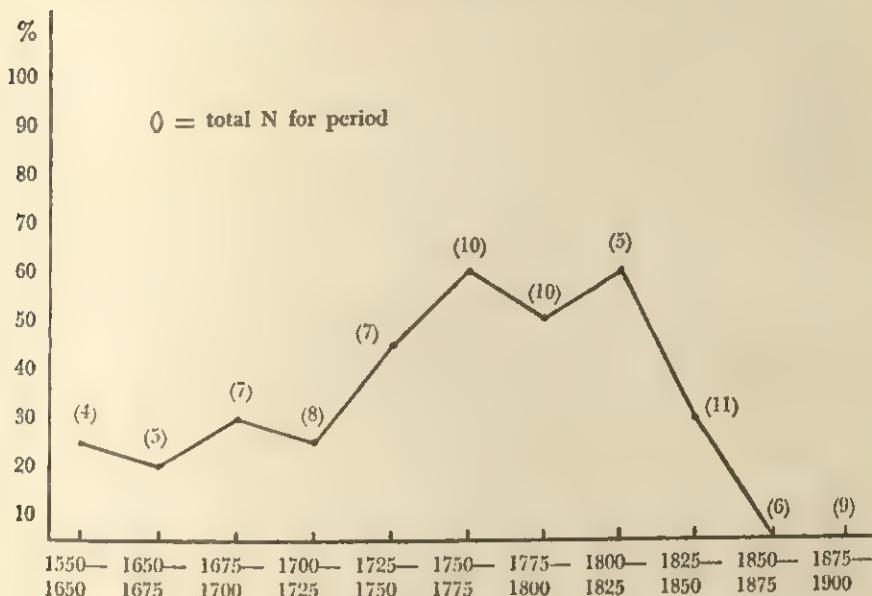
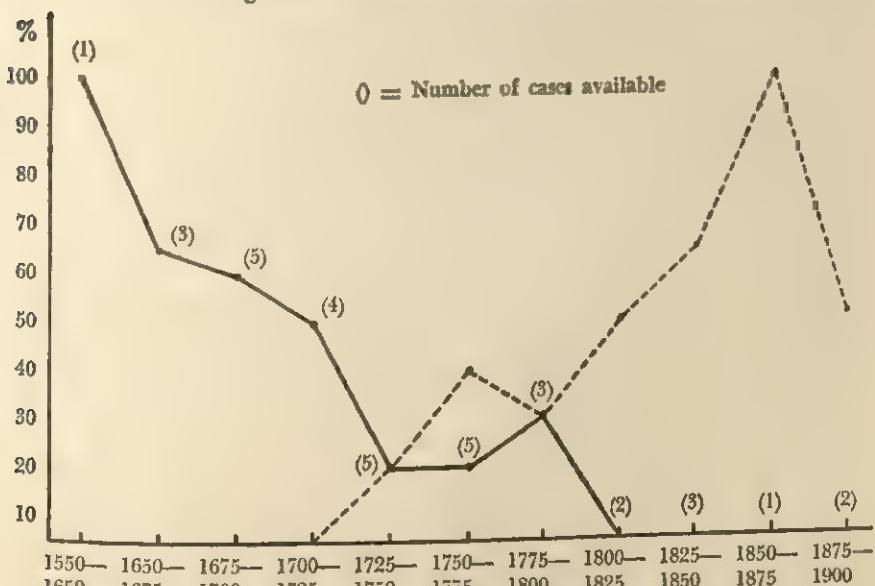


Figure 12

— = % of doctors expressing any view on this subject who conceive of the child as *born evil.*\*

- - - = % of doctors expressing any view on this subject who conceive of the child as *born good.*\*



\* Because there are so few cases available this graph only suggests the trend.

which suggests that at least there was no strong taboo on these forms of oral gratification.

On the repressive side, we find the authors of the earlier period showing considerable concern about overeating, and suggesting various mechanical devices to discourage the child from nursing when the time came to wean him. Nursing bottles had not yet been introduced so, in case breast feeding failed, no alternative form of sucking was available. The custom of binding the child's arms for several months after birth precluded the possibility of thumb-sucking during that time.

In the second period of this study we still find overwhelming approval of breast-feeding by the mother. If, however, the mother could not nurse the child, nursing bottles were recommended as the preferred alternative. Weaning was still to be a gradual process. These are relatively permissive attitudes. On the other hand, we find in the second period that feeding schedules were introduced, the age for weaning was reduced to approximately nine months, the use of wet nurses was discouraged, bitter substances on the breast were still used to hasten the weaning process, pacifiers and thumbsucking were explicitly forbidden, and the fear of overeating began to be superceded by an insistence that a child eat whatever he was offered. The second period thus shows a considerable decrease in the amount of oral gratification permitted to the child.

Turning to anal training, for the period before 1750, the inference can be made that toilet training began at approximately one year. The child was not expected to be consistently dry at night until he was five, punishment for lapses in training was discouraged, and general cleanliness was lightly stressed. While these attitudes represent considerable indulgence of the child's anal drives, two repressive measures are suggested; that suppositories be used for bowel training and that certain mechanical devices, doubtless punitive in effect, be used to prevent bed-wetting after age five.

In the period after 1750, all advice about anal training is clearly repressive. Toilet training was to begin at between three weeks and six months, the child was expected to be reliably dry at night by the age of three, punishments were sometimes recommended for failures in cleanliness, suppositories were still suggested for bowel training, and punitive measures for the bed-wetter. Furthermore, attitudes towards bathing and general cleanliness had changed markedly. Cleanliness was on its way to becoming an obsession, an obsession which strongly influenced attitudes about the child's anal drive.

In the case of sexual training, conclusions about this behavior system are based largely on negative evidence. In the first period of the study no prohibitions are found against masturbation, nudity, or sex-play among children, or against the sexual stimulation of children by adults. After 1750 one finds all these aspects of sexual behavior emphatically forbidden. In both periods the belief is held that adult conversation should be appropriately edited for the ears of children, but also that children's questions should always

be honestly answered. Although neither period explicitly forbade intercourse to the new mother, the earlier period does prohibit intercourse to the wet nurse and one suspects that these two customs have some relationship to each other. Whiting and Child<sup>2</sup> suggest that a post partum sex taboo is a measure of cultural anxiety about sex. If the significance of this taboo can be extended to include the wet nurse, we have one measure of sex anxiety in the earlier period which does not exist in the later one. Because this is a doubtful measure it seems wiser not to emphasize it, and since there were four sexual activities which were specifically prohibited in the second period but not in the first, it is judged that the second period was more repressive than the first in the area of sex training.

Before 1750 the child's dependency was given considerable encouragement. The swaddled baby needed constant attention and care; he could not even brush a fly off his own nose. Rocking and singing were the approved methods for putting the child to sleep, and handling and dandling by the adults in his household was freely permitted, along with a quick and nurturant response to the infant's crying. Although the child may not have been put to sleep in his mother's bed until several months after birth, he was allowed to remain there until he was weaned at the age of two, and when he did finally move out of his parents' room he was expected to move into a bed with his siblings or a servant. In the second period these attitudes were very nearly reversed. The practice of swaddling was emphatically disapproved of by medical writers after 1750, as were rocking and singing, handling and cuddling, and the immediate indulgent response of adults to the baby's cry. Although the child was to sleep with his mother as a newborn baby, he was to be removed from her room to an unshared bed before he was a year old. These changes represent a clear trend toward disapproval of dependent behavior.

In addition, in the second period positive encouragement was given to the child's desire for free motor activity. He was to be permitted to kick freely as an infant, to crawl and walk when he pleased, and he was to exercise energetically as an older child, an admonition which applied even to girls. Such freedom of movement was never advised in the earlier period; it represents, therefore, a new tendency to encourage autonomy and self-initiated activity in the child—the opposite of dependence.

The sources used in this study provide little information about the training of aggression. Although authors of both periods put a high premium on obedience, little is said at any time about such measures of aggression as fighting, verbal attacks on other people, or destruction of property. Temper tantrums are mentioned in the second period but not in the first: this may mean that the second period was more tolerant of children's aggression, or perhaps only that children were more aggressive at a time when repression

<sup>2</sup> J. W. M. Whiting and Irvin L. Child, *Child Training and Personality: A Cross-Cultural Study* (New Haven: Yale University Press, 1953).

and adult control were characteristic of training in the oral, anal and sexual spheres.

Although information about direct aggression is sparse, there are several beliefs, common before 1750, that are of interest in connection with aggression. First, milk was believed to be white blood. Could this imply a conception of the child as a vampire which destroys what it feeds on? Secondly, character was supposed to be literally transmitted through the milk. This again suggests an almost cannibalistic ingestion of the mother by the child. The third significant belief was that teething was mortally dangerous to the child. Since teeth are manifestly aggressive weapons, it is possible that this belief camouflaged a deeper conviction that the child must be punished for aggression. Finally, we find in the earlier period, the theologically based belief that the child is "born evil." Society expected the child to show signs of his depravity and one of these signs may well have been aggression.

In the second period all of these beliefs have vanished and a new one, of equal interest, has taken their place. After 1750, we begin to find doctors warning every mother against the danger of nursing the child immediately after she has experienced any strong emotion. If she were to nurse him after a fit of anger it might even prove fatal to the infant. Is this perhaps a veiled allusion to the hostility which the mother may feel towards the child, a taboo which protects her from her own phantasies of destroying him in anger? If this interpretation is valid, it suggests that fear of the child's aggression against adults is characteristic of the first period, whereas fear of adult aggression against children is more typical of the second.

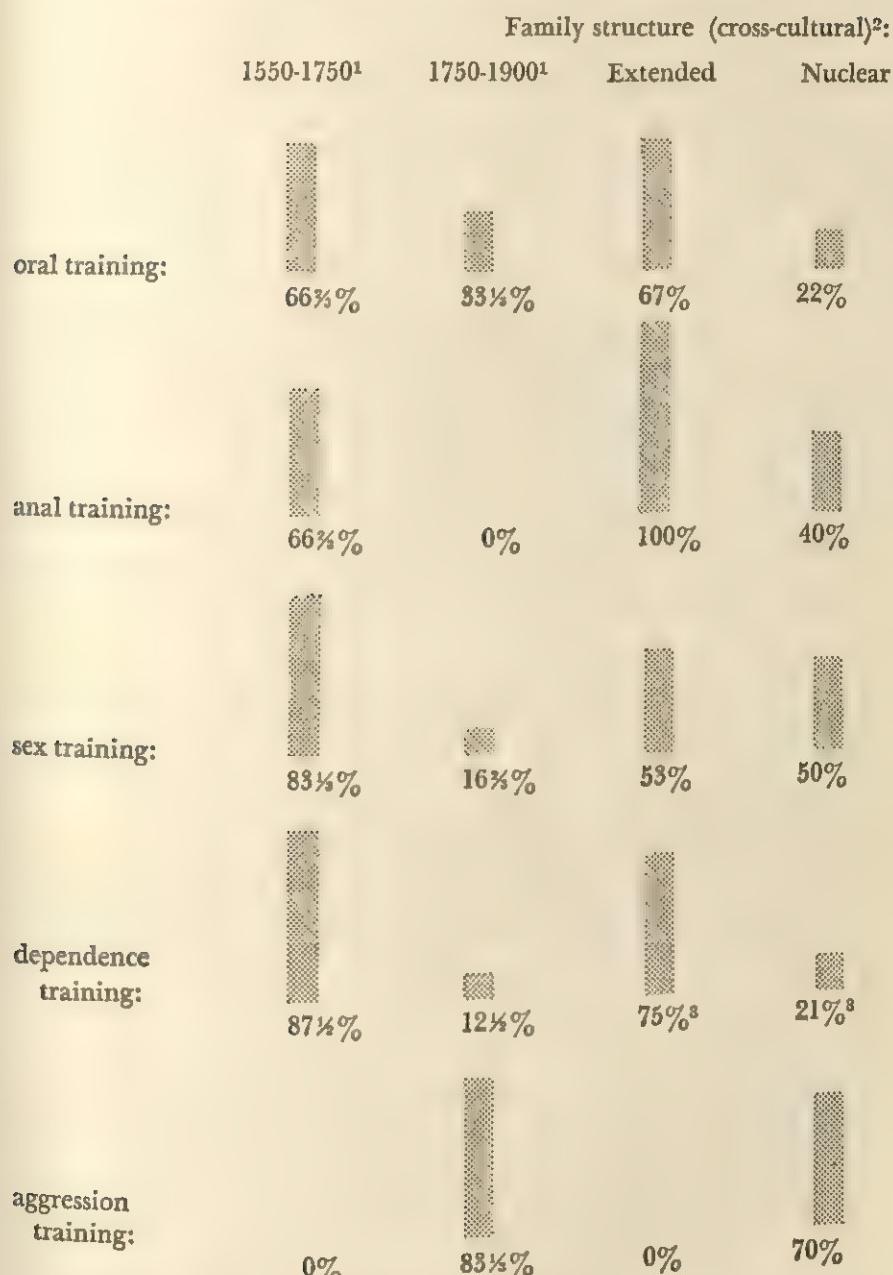
In considering the five basic behavior systems one finds that there was a decrease of permissiveness in oral, anal, sexual and dependence training, and an increase of permissiveness in regard to aggression training. Figure 13 illustrates the relative degrees of permissiveness in the early and late periods of this study. It also indicates the relative standing, on a scale of permissiveness, of extended families and nuclear families over the world. More will be said on this subject later but there are other cross-cultural relationships which need to be examined first.

Basing the information on the study of seventy-five primitive societies by Whiting and Child<sup>3</sup>, one finds that in all five behavior systems the period from 1550 to 1750 closely approaches the cross-cultural average in respect to permissiveness. On the other hand, the advice given in the period from 1750-1900 is considerably more severe than the cross-cultural average in the oral, anal, sexual and dependence categories, and less severe in aggression training. The advice of the later period is also considerably more severe, in everything but aggression training, than the twentieth century advice of Spock<sup>4</sup> or than

<sup>3</sup> *Ibid.*

<sup>4</sup> Benjamin Spock, *The Common Sense Book of Baby and Child Care* (New York: Duell, Sloan and Pearce, 1945).

Figure 13  
RELATIVE PERMISSIVENESS OF TRAINING:



<sup>1</sup> % of advice which can be classified as permissive.

<sup>2</sup> % of tribes (with indicated family structure) above the median on a scale of permissiveness. From: Whiting, J. W. M. in Irving Child et al., *Cross-cultural Ratings of Certain Socialization Practices* (unpublished manuscript).

<sup>3</sup> Based on transition anxiety score of Child et al. *Ibid.*

the practices described by Sears, Maccoby and Levin<sup>5</sup> in their study of 379 mid-twentieth century New England families. These comparisons make it clear that the advice of 1750-1900 was not merely more severe than that of the periods preceding and following it, but more severe in most respects than advice and practices in the majority of societies in the world.

This leads to one of the most tantalizing questions posed by the findings of this study: namely, *why* did these dramatic changes in child-rearing patterns occur in the middle of the eighteenth century?

One of the reasons for the change may well have been an ideological one. McClelland<sup>6</sup> has suggested that the strong Methodist movement led by John Wesley in the first half of the eighteenth century may have had repercussions on personality development. He points out that Methodism stressed the importance of personal communion with God and of the Christian perfection of the individual. Both of these virtues depended on self-reliance, a quality best taught by early independence training. In other words, it is suggested here that the demands of Methodist theology forced a pattern of early independence training on Protestants of this sect. McClelland goes on to point out that, although Methodism was the strongest of these non-conformist sects in the first part of the eighteenth century, there were others with similar points of view about the responsibility of the individual, and he feels that the strength of the non-conformist movement was sufficient to cause general changes in child-rearing patterns.

Another innovation which may have had considerable influence on child-rearing was the change from one family pattern to another.<sup>7</sup> In the mid-eighteenth century the traditional patriarchal family, living in a household with many relatives and ramifications, began to be replaced by the nuclear family in which parents and children live alone together. In other societies it has been found that the existence of the nuclear family accentuates certain kinds of parent-child relationships, which, in turn, affect the patterns of child-rearing in those societies. The nuclear family is apt to come into being in a social context where the child has great economic importance to the family or where he is important in enhancing or detracting from the status of the parents. In a large household children are likely to be pushed into the background. They may be mildly productive in an economic sense, but they are not the focal points of adult attention; apprentices, maiden aunts, grandparents and servants occupy the parents' minds. On the other hand, these other members of the family may also give the child attention: there is always somebody at hand if he wants help. In the nuclear family, independence be-

<sup>5</sup> Robert R. Sears, Eleanor E. Maccoby and Harry Levin, *Patterns of Child Rearing* (Evanston: Row, Peterson and Co., 1957).

<sup>6</sup> David C. McClelland, *The Achieving Society* (Princeton: Van Nostrand, 1960).

<sup>7</sup> For an interesting discussion of a related topic see Bernard Bailyn, *Education in the Forming of American Society, Needs and Opportunities for Study* (Chapel Hill: University of North Carolina Press, 1960).

comes a virtue in the child for the very practical reason that the mother has less help with her household tasks and therefore has less time to tend the child herself and no one to whom she can delegate his care. The more the child can do for himself the better pleased his mother is likely to be. This means that in the extended family the child is both more dependent on adults and less specifically oriented toward his mother. In the nuclear family his mother may be the center of his world but it is a centrifugal world constantly urging him outwards.

Living in a nuclear family doubtless has other effects on the life of the child. The Whitings<sup>8</sup> have pointed out that there is less aggression allowed in the extended family because, in a situation crowded with many adult personalities, expressed aggression threatens and irritates too many people and must be suppressed for the sake of peace in the household. In the nuclear family it is likely that the parents can tolerate and ignore a certain amount of aggression because it does not bring them into conflict with other members of the household. This reasoning helps to explain why aggression training should have been less severe after 1750.

One also finds cross-cultural evidence which suggests that sexual training is earlier in the nuclear family. In the nuclear family the child competes more directly with the parent of the same sex for the attention of the other parent. Direct sexual expression is forbidden the child because it constitutes a threat to his parents. This applies to a certain extent even in the extended family, but in the small nuclear family greater intimacy between parents and children increases the underlying fear of incest, and therefore the child's sexual expressions are dealt with more strictly.

Finally, oral training in the nuclear family, cross-culturally speaking, is likely to be earlier and more repressive. The reasons for this are similar: the mother is busy and great demands are made on her physical stamina; her husband cannot turn to other members of the household for the companionship which he fails to get from his wife. In order to relieve the resulting tensions she weans the baby early. When the child eats solid foods he can wait longer between feedings, and when he is weaned there is one less demand made on her physical strength. The introduction of schedules for infant feeding also simplifies the demands made on the mother's time.

Both cross-cultural evidence and the intrinsic logic of the situation suggest that the growth of the nuclear family may well have influenced the changes in oral, sexual, dependence, and aggression training. There is no cross-cultural evidence suggesting that the nuclear family pattern produces earlier anal training but similar logic suggests a similar conclusion in this area also.

[See Chart 13.]

<sup>8</sup> J. W. M. Whiting and Beatrice B. Whiting, "Contributions of Anthropology to the Methods of Studying Child Rearing," *Method of Studying Child Rearing*, ed. Paul Mussen (New York: John Wiley, 1960).

The increase in scientific knowledge during the eighteenth century also had an obvious effect on child-rearing advice, and it is not surprising to find that doctors' advice reflects the scientific and medical renaissance of the period. Although the germ theory of disease was a much later scientific development, by the end of the eighteenth century much of the knowledge which led up to the germ theory lay ready at hand. Bacteria had been discovered, and the connection between dirt and disease was becoming constantly clearer. The eighteenth century doctors did not yet know that microbes could make people sick, but they did know that certain illnesses were mysteriously associated with dirt. Once this connection was made, it was reasonable that cleanliness should have assumed a new and crucial significance.

The science of nutrition was also beginning to make its first faltering steps at this time. This was the period when it was discovered that lime juice prevented scurvy in sailors and the implications of this discovery were not long in affecting advice about children's diet. Although no one had any idea that fruits and vegetables contained vitamins and minerals, their nutritional value had been pragmatically determined and they began to be recommended, for the first time, as important elements in a child's diet. The same was true of milk. Milk had long been thought of as a menace to the child's health, but as the obsessive interest in cleanliness was extended to food preparation, clean milk was found to be a valuable addition to the child's diet. Along with these nutritional discoveries, a change is seen in the attitude toward children's eating. The preoccupation with overeating begins to disappear and in its place we find an insistence that the child must eat what is "good for him." Food had ceased to be a simple pacifier of hunger and had become a medical prescription.

There were a number of other changes in child-rearing advice which were unquestionably influenced by the new empirical approach to medicine. Advice about feeding the newborn infant was certainly affected. Advice in the area of anal training was influenced by the new emphasis on general cleanliness. Observations on anatomy and growth affected recommendations about swaddling and walking, and the new permissiveness towards freedom of movement influenced deeper attitudes about autonomy and dependence.

Certain changes in the areas of oral, anal and dependence training can thus be attributed directly to the scientific and medical advances of the late eighteenth century.

Three kinds of influence which may well have accounted for the mid-eighteenth century change in child-rearing patterns have been identified. The resurgence of enthusiasm for an individualistic Protestantism may have helped to produce a more rigorous pattern of independence training. The increasing prevalence of the nuclear family household may have encouraged

earlier oral, anal, sexual and independence training, and there is reason to suspect that this same family pattern allowed more permissive aggression training. Finally, scientific developments undoubtedly helped to increase the severity of oral, anal and independence training.

Up to this point this paper has considered child-rearing patterns as a product of other factors. A shift of focus leads to exploration of the effects which the child-rearing patterns themselves may have had on personality development.

Cross-cultural evidence is available to show that early weaning, sex training, and independence training are crucial in producing strong guilt reactions in the individual. Since early training in these areas was characteristic of the second period in this study but not of the first, we would expect guilt to be more typical of the second period.

Whiting and Child<sup>9</sup> have used attitudes toward illness as a measure of guilt: does the patient himself assume responsibility for getting sick, a reaction of self-blame (guilt), or does he project that responsibility onto some external agent? If one applies this measure of guilt to the two periods of this study one finds a preponderance of self-blame reactions in the second period. Before 1750, many magical remedies were used, which, by their very nature, suggest that some supernatural force must be propitiated in order to cure the disease. This is essentially a projection of blame. After 1750, these magical cures were no longer recommended, and illness was generally attributed to something the patient himself had done or failed to do. He was sick because he had eaten green apples, or gotten his feet wet, or gone out without a hat. These are reactions of self-blame.

Philanthropy is another convincing index of guilt in Western European culture. Using this measure one finds overwhelming evidence that strong super-egos flourished during the greater part of the second period of this study. The nineteenth century was the great era of humanitarian movements and philanthropic enterprises originating in the middle class. Usually this is attributed to the fact that the Industrial Revolution intensified the misery and suffering of the working classes, but this does not really explain why the middle class reacted to this situation with an effort to help. It is reasonable to assume that an increase in conscience, the faculty of guilt, may have been responsible. Before the Industrial Revolution, poverty had been accepted with extraordinary equanimity by the middle class as a whole.

It is also possible to consider the degree of responsibility assumed by the parents for the development of the child as another measure of guilt. If the parent feels that the child's fate is predetermined and that nothing the parent can do will ensure his salvation, he is projecting all responsibility

<sup>9</sup>Whiting and Child, *op. cit.*

onto a divine agent. If, however, parents feel that the child is perfectable and can be made into a successful adult by proper parental pressures, then those parents are assuming the burden of guilt in case the child fails to come up to expectation. Certainly the first point of view is typical of the early Puritan period, just as the second is characteristic of the later period.

Finally, reference is made to a piece of advice given by three authors after 1750. They say that the child should not be allowed to strike the floor in anger if he falls on it. He should not be encouraged, in other words, to project the blame for his fall onto an external agent, but instead should be forced to take full responsibility for his own carelessness. This piece of advice neatly illustrates the need that adults felt to encourage a sense of self-blame in children.

This short analysis of reactions to illness, philanthropy, and parental responsibility, leaves one with a strong presumption that guilt reactions were actually stronger in the period after 1750. It has not, of course, been proved that this increase in guilt resulted from earlier sex training, independence training, and weaning. This paper merely records the observation that increase in guilt reactions coincides with increased severity in these aspects of child rearing, and it is pointed out that this coincidence exists in the majority of those cultures for which these variables have been recorded.

McClelland's studies of achievement<sup>10</sup> add another dimension to the interpretations suggested by the study. He has said that early independence training produces in the child a high need for achievement. He suggests that this need for achievement is shown in the Industrial Revolution itself, and he offers evidence to show that early independence training produces a kind of adult personality which is immensely effective in creating an industrial society.

Historians, because they are familiar with adult patterns of behavior, will be able to contribute much additional insight into the causes and results of the child-rearing patterns here identified, and new cross-cultural and psychological insights should make possible more extensive use of the material presented here.<sup>11</sup>

#### APPENDIX

##### *Sources Used For The Study and Comments On The Authors*

The majority of the sources used can be located at the Boston Medical Library. The remainder are at either the Yale Medical Library or the New York Academy of Medicine Library.

<sup>10</sup> McClelland, *op. cit.*

<sup>11</sup> Alice Ryerson, "Medical Advice on Child Rearing, 1550-1900" (unpublished Ed.D. dissertation, Graduate School of Education, Harvard University, 1959).

- Alcott, William A. *The Young Mother or the Management of Children in Regard to Health*. Boston: Strong and Brodhead, 1849.  
(Alcott was a New Englander, a graduate of the Yale Medical School and a doctor notable for his distrust of drugs and medicines.)
- Armstrong, George, M.D. *An Account of the Diseases most incident to Children to which is added an Essay on Nursing with a Particular View to Infants Brought up by Hand*. London: T. Cadell and W. Davies, 1808.  
(Founded and paid for the first public dispensary for children in England, in spite of the fact that he was very conservative in his medical views.)
- Art of Nursing or the Method of Bringing up Young Children according to the Rules of Physick for the Preservation of Health, and Prolonging Life*. London: J. Brotherton and L. Gilliver, 1783.
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(The first woman to graduate from a medical school in America, she was much interested in public health.)
- Buchan, William. *Family Medical Library*. Cincinnati: J. A. James, 1843.  
(Over twenty editions of this book were published in England. Many editions appeared in America as well, and its popularity lasted for well over seventy-five years.)
- Bull, Thomas, M.D. *The Maternal Management of Children in Health and Disease*. Philadelphia: Lindsay and Blakiston, 1849.
- Cadogan, William. *An Essay upon Nursing and the Management of Children from their Birth to Three Years of Age*. London: J. Roberts, 1752.  
(The author was one of the strongest mid-eighteenth century advocates of change in the area of child-rearing.)
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(An English doctor popular on both sides of the Atlantic, he had a sentimental approach to children characteristic of his period.)
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(A Scottish Calvinist with a caustic style and a hard headed rationalistic approach to the subject of children.)
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(An early writer on obstetrics and child-rearing.)
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(Grandfather of Charles Darwin and a distinguished eighteenth century scientist and poet.)
- de Vallambert, M. Simon. *De la Maniere de nourrir et Gouverner les Enfans des leur naissance*. Poitiers: Marnes et Bouchet, freres, 1565.

- (A French doctor whose work on obstetrics and infant care was written in the vernacular of a period when Latin was still the respectable language for scholars.)
- Deweese, William P., M.D. *A Treatise on the Physical and Medical Treatment of Children*. Philadelphia: Carey, Lea and Carey, 1829.  
 (A popular nineteenth century American.)
- Dix, Tandy L. *The Healthy Infant*. Cincinnati: P. G. Thomson, 1880.
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- Griffith, J. P. Crozer, M.D. *The Care of the Baby, A Manual for Mothers and Nurses*. Philadelphia: W. B. Saunders & Company, 1903.  
 (The most moderate of the late nineteenth century Americans.)
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 (A French court surgeon whose works on obstetrics and infant care were quickly translated into English.)
- Harris, Walter, M.D. *A Treatise of the Acute Diseases of Infants to which are added Medical Observations on several grievous Diseases*. London: G. & J. Innys, 1742.  
 (An English doctor, inordinately proud of his aristocratic clientele, he developed an "acid theory" of disease, widespread in popularity but of doubtful utility.)
- Holt, L. Emmett, M.D. *The Care and Feeding of Children*. New York: D. Appleton & Co., 1905.  
 (The most famous of all American pediatricians at the end of the nineteenth century. His book, revised by his son, is still in print.)
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 (The first American to think of himself as a pediatrician.)
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- Nelson, James. *An Essay on the Government of Children under three General Heads: viz. Health, Manners, and Education*. London: n.p., 1753.  
 (A very articulate apothecary who provides useful and amusing insights into mid-eighteenth century practices and prejudices.)
- Pechey, John. *A General Treatise of the Diseases of Infants and Children collected from the best Practical Authors*. London: n.p., 1697.  
 (An editor more than an original writer, Pechey assembled the works of previous medical writers on childhood.)
- Pemel, Robert. *De Morbis Puerorum or a Treatise of the Diseases of Children; with their Causes, Signs, Prognosticks, and Cures etc*. London: P. Stephens, 1653.  
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- Phaire, Thomas. *The Boke of Children*. Edinburgh and London: E. & S. Livingstone Ltd., 1955. Reprinted from 1545 edition.  
 (The first doctor to write on medical treatment of children in English.)

- Full of picturesque and sometimes horrifying medical prescriptions.)
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(Inventor of the first infant feeding bottle used in England. One of the first doctor's books to be concerned only with the management of the healthy child.)
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- Uffelman, Julius, M.D. *Manual of the Domestic Hygiene of the Child.* ed. Mary Putnam Jacobi, M.D. New York: Putnam, 1891.  
(The violently repressive point of view of this German doctor was apparently accepted by his translator, Mary Putnam Jacobi, the eminent wife of Jacobi, the pediatrician.)
- Underwood, Michael, M.D. *A Treatise on the Diseases of Children With General Directions for the Management of Infants from the Birth.* Philadelphia: T. Dobson, 1798.  
(The author of the most complete and up-to-date work on diseases and management of children. His book went through many editions both in England and America.)
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## *Notes from Readers*

THE ARTICLE, "The Role of the Counselor in the Guidance of Negro Students,"<sup>1</sup> indicates that educators are aware that there is a problem facing counselors of Negro boys and girls, and are giving some thought towards a solution. I would like to raise some questions regarding the article in an effort to accelerate research towards a solution to the problem.

These are the ideas I question which the article seemed to project:

1. The author implies that the Negro's lack of motivation and his negative attitude are unwarranted.
2. The author feels that the Negro's failure to choose or hope for jobs with a high degree of social status is unrealistic.
3. The article seems to have been written as a manual for Caucasians.
4. The article did not touch upon the total social structure which is negative towards the Negro and which produces the negative attitude.
5. The article ignores research on the Negro which establishes the Caucasian's inability to penetrate the barriers which the Negro has erected for his survival.<sup>2</sup>
6. The article ignores the findings of "social distance" research which shows that the Caucasian has a pre-conceived mental picture of the Negro which may prohibit a neutral counseling session, or which may interfere with the counselor's execution of his skills.<sup>3</sup>
7. Finally, the article ignores the Negro's position as a "spectator" in American society. The Negro emerging from a "state of invisibility," and the acute degree of his "sociorosis" causes him to have his own values, needs, and drives which are foreign to the Caucasian.

The points mentioned indicate that the Caucasian has not achieved a position from which he can expect positive results out of his interaction with Negroes and other minorities in counseling sessions. However, research and the literature of the Negro do suggest certain notions which indicate the direction which practice must take so that positive therapeutic results can be achieved from counseling sessions.

I would like to present some ideas which may produce insight on the factors which inhibit counseling success. These ideas center upon the social and psychological barriers which the Negro has erected to guarantee his survival. The basic personality structure of the Negro and the Caucasian is the same, but the Negro has coated his with a deceptive device.

The Negro first erected his barrier during slavery. Frederick Douglass in his autobiography, *My Bondage, My Freedom*, tells how the slaves invented

<sup>1</sup> Dennis L. Trueblood, "The Role of the Counselor in the Guidance of Negro Students," *Harvard Educational Review*, XXX, No. 3 (Summer, 1960), 252-269.

<sup>2</sup> See, for example, Harvey R. St. Clair, "Psychiatric Interview Experiences With Negroes," *American Journal of Psychiatry*, CVIII (August, 1951), 113-119.

<sup>3</sup> See, for example, Waldo B. Phillips, "Counseling Negro Pupils: An Educational Dilemma," *Journal of Negro Education*, XXIX (Fall, 1960), 504-507.

the so-called spirituals as a communication media to confuse the slave owner as they sought freedom. The poems of Paul L. Dunbar, *We Wear the Mask*, and *Ante-Bellum Sermon*, also demonstrate the Negro's dual personality.

This dual personality of the Negro is demonstrated in the tales of Uncle Remus, which are stories told to Joel C. Harris by ex-slaves. A major theme of the tales is that of the slaves outwitting the masters with their deceptive strategy. Dr. W. E. B. DuBois, in his *Souls of Blackfolk*, also stresses the deceptive personality of the Negro. In his history of the Negro, *Mansart Builds a College*, he re-emphasizes this Negro dualism. Melvin B. Tolson, in *Libretto for the Republic of Liberia*, asserts that the African uses a communication device called "deepie-talkie" whereby there is one mode of thought and expression for the African, and another for the non-African. Richard Wright in his novel, *The Long Dream*, has the main character, Fishbelly, exhibiting perfect English logic and behavior among the Negroes, but resorting to a hat-in-hand technique and dialect in the presence of Caucasians. The same author, in *Native Son*, demonstrates the difficulty of a Caucasian establishing rapport with a Negro. Max, the lawyer, could never understand or see things the same way as Bigger Thomas, or comprehend why he acted as he did, and Bigger could not understand why Max did not see life his way. When Bigger had developed insight and was ready to act upon it, Max did not recognize the rapport which had been established.

Mexicans, another minority, have structured a similar barrier against the Caucasian. *The Texas Quarterly* (Spring, 1959) carried an article by Octavio Paz, "The Labyrinth of Solitude," which points out the Mexican's barriers. The Mexican refuses to acquire American citizenship or teach his children English. He pretends to be tough, has a hermetic quality, never lets his guard down, daily resorts to excesses of silence or verbosity, politeness or contempt.

Hadley Cantril, in his series of lectures at the University of Southern California in December of 1958, touched on a point to enter here. In viewing situations, people do not see things differently, they see different situations. This knowledge is vital in counseling work between various racial groups. Regardless of a Caucasian's ability, it is difficult for him ever to conceive life or a situation as the Negro does.

James Baldwin, writing in the July, 1960 *Esquire*, explains why Negroes destroyed a million-dollar housing project which was being built in Harlem. They did so because it was being built in Harlem. It was there to continue a forced segregation. So-called settlement houses in Harlem face the same failures, because they enter a depressed area and attempt to force the persons there to adjust to the area, to maintain a segregated community. Settlement workers say good things are being done, but the Negroes see segregation being enforced. Settlement workers are often amazed at the Negroes' lack of interest and lack of use of the settlement houses.

Any program of a guidance nature which is presented to Negroes by Caucasians may have a low rate of effectiveness for two reasons: 1) the Negro's history has taught him to distrust the Caucasian; 2) there is present in the Negro's personality the negative attitude suggested above. The Negro cannot prepare for a career in any of the professions for there is at present a quota system. Similar restrictions are present in all phases of the Negro's

life. The Negro realizes this and accepts it. The Negro constantly asks this question, "Do they hire Negroes in this area?" Norman Mailer explains this phase of the Negro's life very well in his short story, "The White Negro." It is difficult to attempt to change the Negro's negative attitude when America responds to him in a negative manner.

A positive guidance program for Negroes should be only a guidance program, and not one especially for Negroes. This does not seem possible unless there is a mutual positivism existing between the American society and the Negro. The Negro must have a positive confidence in the future, and the American educators must have a positive confidence in the Negro.

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## *Book Reviews*

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*Autocracy and Democracy, An Experimental Inquiry*, Ralph K. White and Ronald O. Lippitt. Harper and Brothers, New York, 1960. 330 pages \$6.00.

The experimental inquiry was conducted in 1938. A "Preliminary Note" by Kurt Lewin and Ronald Lippitt appeared that year in *Sociometry*. In 1939, Lewin, Lippitt, and White came out with "Patterns of Aggressive Behaviors in Experimentally Created Social Climates" in *Journal of Social Psychology*. These two eight-page notes were followed in 1940 by Lippitt's truly magnificent full account, "An Experimental Study of Authoritarian and Democratic Group Atmospheres. Studies in Topological and Vector Psychology" in *University of Iowa Studies in Child Welfare* (150 pages). Then, in 1943 there was the chapter (23 pages) in Barker, Kounin, and Wright's *Child Behavior and Development*. In 1953, the chapter (26 pages) in Cartwright and Zander's *Group Dynamics* was footnoted: "Condensed from a fuller discussion contained in chapters 3 and 6 of a forthcoming book by the same authors." And this, finally, is the forthcoming book.

It is worth waiting for. The material is as fresh and exciting now as it was 22 years ago. For this is one of the few really historic studies, and, appearing at the same time as Rothlesberger's famous Hawthorne study of 1939, it opened up an almost virgin field: the experimental study of face-to-face groups. In 1953, Cartwright and Zander introduced the account in their book as follows:

The experimental study reported... by White and Lippitt has now become a classic. It has added great impetus to the functional approach to leadership and has served to stimulate much of the recent research in this field. The leaders in this investigation were not peers of the group members but were adult leaders of youth groups. They were trained to be capable autocratic, democratic, or laissez-faire leaders. Each leader was skilled in all three styles of leadership and led a number of meetings while using each method. In the laissez-faire groups the leader deliberately attempted to perform a minimum of the functions of leadership. In the autocratic groups he held to himself as many of the functions as possible. In the democratic groups he played an active role, but made efforts to spread the functions of planning and decision-making as widely as possible. The behavior of the leaders and of all the members was carefully observed and recorded in quantitative terms. The results show clearly that the different types of leadership were reflected in distinctly different patterns of leader behavior. Furthermore, the behavior of the group members differed markedly under the different types of leadership. Both group solidarity and group productivity differed markedly, and a characteristic emotional atmosphere developed in each group.

The study, then, was a bold pioneering effort which laid down the lines of a vast body of subsequent experimentation. It viewed leadership as a pattern of functional behaviors rather than as a charismatic property attributable to special personal traits of the leader. Moreover, it suggested that leadership patterns are organized by basic social-political attitudes: democracy, autocracy, anarchy. It related leader behaviors to member behaviors, and showed that the behaviors of the leader have profound influence on those of members. Further, it discussed these relationships in terms of properties attributed to the group as a whole: morale, productivity, emotional atmosphere. By showing that the same person could create different leadership styles, it tended to de-emphasize personality characteristics as being fundamental determiners of leadership. Such a study was bound to stir up great controversy, and we shall note further on some of the issues which it dramatically ushered into behavioral science.

Comparison of the present book with Lippitt's 1940 monograph is instructive. Kurt Lewin, a recent refugee from totalitarian Germany, had, according to the preface in White and Lippitt, a "passionate concern for the survival, the growth, the fruition of democracy as a way of organizing personal and collective life"; and, in 1943, he wrote "If Science is going to help establish the reality of democracy for the young American it cannot be a science dealing with words. It will have to be a science dealing with facts; with facts of a very tangible nature; with facts close to the everyday life of the individual person; with facts that matter...." In what terms could such a science be constructed? What would it deal with? What would be its subject-matter? Lewin's answer, developed into a systematic conceptual system, was that it would be concerned with the individual's "space of free movement"; with the forces, both internal and external, that he was subject to; with the boundaries, obstacles, and valencies that determined his "locomotion" in his "life space"; with interpersonal constraints due to differences in "potency" between individuals. Only as such a science developed could man hope to produce the "facts" that would establish, clarify, and define democracy, and demonstrate its consequences in man's way of life.

The first account, by Lippitt, not only deals with the phenomena of the experiment; it also, as a study in topological and vector psychology, explicates the concepts of the new Lewinian science. The phenomena are discussed at the level of abstraction of forces and potencies. Method and procedure are given great attention. It is a masterly exposition of a particular metatheoretical approach. "Explanation," to quote Cartwright's authoritative account of Lewinian theory (in Koch, S. (Ed.), *Psychology: A Study of a Science*, vol. 2, p. 21) "consists of describing concrete situations in such a way that it can be shown from the system of concepts that certain events 'must' occur. The present account is much broader; it is freed from the constraints imposed by the burden of demonstrating field theoretical concepts at the same time it discusses substantive behavior. White and Lippitt make this almost explicit in their preface:

We have found ourselves returning frequently, with a sense of incompleteness... to review and extend the insights that emerged from these observations. Some aspects of the data have never been reported. Our notions about the meanings of our findings have

changed and clarified; and the nature of events in our rapidly changing society have kept reinforcing our belief that the attitudes and methods of scientific research can be applied to the study of democracy by those who are trying to live it and extend it. Also we discovered that we are a bit ashamed of ourselves for not having been willing to "stick out our necks" in our earlier reports by putting into print some speculations about possible relations between our limited inquiry and the broader aspects of life in a democracy.

### Accordingly

The authors take four different orientations at various points in the book: (1) part of the time they are reporting quantitatively and qualitatively what happened in the experiments; (2) at other times they are proposing theoretical interpretations of the meaning of what was happening in the experimental groups; (3) then later there are speculations about the possible implications of these data for carrying on life in other small groups, such as the family and classroom; (4) and finally, there are sections labelled 'political commentary' in which speculation is pushed into the realm of large group phenomena at the level of national life and international relations.

These changes reflect Lippitt's deep interest in understanding the individual's behavior and growth in the classroom and family; case studies of individuals are now used to throw light on previously undiscussed aspects of the experiment. And White's interest, as Chief, Communism Analysis Division of the Office of Research and Analysis in the USIA, accounts for the political commentary. But 20 years has done more than sharpen the authors' personal and professional interests; it has also changed the climate of "scientism" which prevailed in 1940. Comparison of the 1940 and 1961 works exemplifies a change in aspiration, expectations, and attitudes in the social sciences. 1940 belongs to what Koch delightfully calls the "Age of Theory" (see Epilogue, vol. III, *op. cit.*). He writes "It is an interesting paradox that a climate in which investigators typically reported *experimental* results (in scientific journals) in the most 'local' and situation-bound terms was as the same time one in which theorists (often the same persons) translated such findings into *theoretical* laws potentially adequate to 'all behavior'." Times change. There is now much less compulsiveness about inventing metatheories to serve as prescriptions to be followed rigidly in the construction of substantive theories; we are less worried about creating immediately by postulational legislation, a full-blown social science; we are more prone to relax and feel, as a colleague of mine once put it, that "200 years of observations of behavior and free speculations about behavior stand between us and a genuine behavioral science." In *Autocracy and Democracy* (and in 1961) the authors are relaxed, and feel free to pursue meanings "wherever they may lead"; and the result is a simpler, more modest, more exciting, and more genuine inquiry into behavior. It is also an inquiry backed up by the cited work of many others (13 pages of bibliography); while it is faithful to the authors' interests it is also an explication of questions in the main stream of current social inquiry.

The book begins with discussion of the concept of democracy, and we discover that Stalin, Lenin, and Krushchev profess some democratic goals.

Common agreement is found on four characteristics of democracy: people's rule, freedom, responsibility to cooperate, and concern for the individual. For experimental purposes, democratic leadership is to mean low control over means and goals along with high stimulation of group procedures (for defining goals and means); autocratic leadership will assume high control of goals and means, with low stimulation of group procedures; and laissez-faire leadership will exert low control over goals and means as well as low stimulation of group procedures. All three types of leadership are to be "medium friendly."

The main experiment involved four five-man groups of eleven-year-old boys. Each group had three series of meetings, each series under a different leader. One group experienced democracy twice and autocracy once; another group, vice versa; and the other two groups encountered all three styles once. Hence behaviors of the same personalities could be compared under the different styles. Data included a stenographic record, running account, social interaction account, group structure analysis, intergroup running account—all observed; and also write-ups by leaders, interviews of children and parents, and ratings of each child by his parents and teachers.

Analysis of leadership establishes that two persons acting autocratically produce patterns more alike than the patterns of the same person operating with different styles; the independent variable was "style," not leader personality. "Giving orders" and "disrupting commands" accounts for 56% of the autocratic leadership behavior, as compared to less than 5% for the other two styles. Almost half the laissez-faire behavior is categorized as "extending knowledge," partly because the role is largely limited to answering questions. Actually, the amount of information given was about the same under the three styles, but it represented different proportions of the total behavior pattern. In terms of percentages, the democratic leaders were higher than the others with respect to "guiding suggestions," "stimulating self-guidance," "jovial and confiding," and "matter of fact." In terms of actual number of such behaviors, the differences are greater because the democratic leaders were very actively participating. (Incidentally, the graph of the data, Figure 1, is confusing because the democratic and laissez-faire notations are interchanged).

In chapter four we are given "glimpses of group life," presented as excerpts from club records accompanied by interpretative comments. One becomes aware of the differences in "feeling" among "submissive reactions to autocracy," "aggressive reactions to autocracy," laissez-faire, and democratic atmospheres or cultures of the club groups. The next chapter presents the data on member behavior toward the leaders and toward other members. The comparisons among the three styles are noted in 28 generalizations; it is noted that laissez-faire leadership produced less work, more play, more discontent, and less preference than democratic leadership. Autocracy promoted more submissive behavior, less individuality; it could also produce hostility and aggression of many sorts and discontent whose expression is somewhat suppressed. Democracy was more motivated, more friendly, and more concerned with the welfare of others ("group-minded").

The next two chapters present excerpts from two of the clubs, and show quite convincingly that some of the member behavior changes quite marked-

ly as the club is moved from one leadership style to another. (The fact that the same child may behave very differently under two different teachers seems to me to have obvious, if mostly disregarded, implications for composing classes.)

Chapters 8-11 are interpretations of group findings. In these chapters we encounter—with great interest—the first “political commentary.” The familiar tendency to flee from anarchy or chaos into autocracy is seen not only in the life of the clubs, but also, at different periods of history, in Greece, Russia, Germany and Italy. The puzzling fact that people can live under autocracy without becoming frustrated is analyzed and its conditions revealed; the even more puzzling fact that people under autocracy may become frustrated and yet remain submissive gives food for thought to any conscientious leader; and the role of aggression in autocracy is explained in terms of status, emotional and ego needs. Of particular interest is the shrewd discussion of who gets scapegoated. To this reviewer, these four chapters “come off” very well, and certainly should free us for more awareness that concepts of the dynamics in larger societies may also add considerable meaning and significance to our observations of our own groups—and vice versa.

The next two chapters discuss two boys who made democracy harder and easier to achieve, respectively. Their “club personalities” are related to their home backgrounds. The ways in which these boys “relate” to or fail to relate to their parents turns out to be of crucial importance. Especially central are the differences that account for the internalization—or failure to internalize—adult values. This leads into the chapter modestly called “Notes on the Nature and Growth of Conscience,” and in my opinion this is a major clarification of current fuzzy ideas about discipline and warmth. The final note on the need to distinguish between orderly democracy and orderly autocracy—both having high appeal for the conscientious child—is a telling one.

The final five chapters on implications amount to a mature discussion integrating the work of many other people, organized around the following topics: Psychological Core of Democracy (open-mindedness, self-acceptance and self-confidence, realism, freedom from status-mindedness, fairness, and friendliness); Apathy and Over-conformity as Obstacles to Effective Democracy; How Satisfying is Democracy?; How Efficient is Democracy?; and, finally, What Can be Done about the Inefficiencies of Democracy? I think it is only fair to the authors for me not to give away the plot of these chapters!

Perhaps I have outlined enough to show that this is really an extraordinary book, for it blends two kinds of thinking which seldom come together. The presentation of experimental data, usually within a very limited theoretical context, is familiar, and so is the broad discussion of “the nature of our times”—the ponderous cliché, livened (if at all) by appeals to common sense. Here we find a new style, a new task: that of dealing with fundamental politico-cultural questions on the basis of careful studies. The experiment itself presents a micro-society, and the problems and issues of this society are then examined and illuminated on a larger scale. To do this requires one to be able to distinguish among theories of the individual personality, the face-to-face group, and the larger milieu; that is, to be able to discuss each of these organizations in terms appropriate to itself, and, at

the same time, to see how the events at each "level" can be explained in terms of tendencies at the level below. For example, anyone who has worked in this field knows how easily one can attempt to explain group behavior through a questionable analogy to personal dynamics—to fall into the error of regarding the group as a super-individual; or, conversely, to assume that group norms, backed up by group myths, somehow ought to explain individual behavior. The fact that I did not find a single instance of such confusion testifies clearly to the lucidity of thought of the authors.

During the reading of this book, I could not help but have almost nostalgic memories of some of the issues stirred up by the original reports. Thus, for example, there was the issue as to whether one can do valid research on *any* laboratory group. The argument was that it was too "artificial," and that one could not get results having value for "real, ongoing" groups. The answer to that is quite clear: when people are emotionally involved, the task is "real" to them and they behave like real people; the only caveat is that we must describe the *situation* accurately: it is not *any* or *every* club, but only particular clubs each with its own unique history and social circumstance. But we still have examples, unfortunately, of groups which are *not* emotionally involved in the experimenter's task, and the findings throw a great deal more light on how a group deals with triviality than on how motivated people deal with problems like those the experimenter thinks he is posing.

Then there was the issue over what is the *essence* of leadership. The advocates of the "great man" theory found that successful leaders tend to be more intelligent, outgoing, aggressive, etc. The advocates of "interaction" theory saw leadership as an emergent function, whose exercise could be distributed in various ways among all those present. The present study seems to see leadership as emergent from the interaction of member *personality* with leader *behavior*; we are told that leader personality probably enters in, but that its effects on the behaviors studied are less than the effects of the behavior pattern. My own hunch is that this rather odd definition makes sense because *there is a defined task*: what is being studied is the kind of *roles* the boys assumed when confronted with alternative definitions of the leader's *role*. If the task were not clearly defined (and the leader's role defined partly by the demands of the task), then inter-personality interactions would be highly important. Thus one is more likely to produce an effective class by "matching" students to the teacher as a person than by matching student's preferred roles to the teacher's leadership style.

Another issue, fortunately rather dead (I think) had to do with motivations in research. The argument went that to study interactive behavior clearly bespeaks a yen for manipulation and power; that understanding of such things was bound to be perverted by would-be dictators. I suppose enough would-be dictators have been hoisted by half-knowledge to put the damper on that one! Actually, of course, the more one understands about natural processes the more he realizes he must respect them and work with them, and the more he understands also the cost (in policing and social waste, for example) of trying to exploit them.

This leads me finally to a very real present issue: can democracy be

achieved by setting out to get democracy? Or is what we call democracy only the by-product of a more fundamental quest? At the face-to-face level, the groups I have thought were most democratic never gave it a thought. When people have a job to do, listen to each other, test ideas against reality, use emotional expressions as cues for diagnosing situations rather than personalities, and build their social hierarchies around demonstrated ability to contribute, then we probably have whatever it is that we mean by democracy. To me, it is the "natural" order that emerges from the conception of social interaction as engagement in inquiry. You do not get cooperation by asking for cooperation; you get it by setting conditions such that cooperatively is the "natural" way to behave. You do not help a leader by making him anxious about whether he is "democratic"; you help him by showing him relationships between characteristics of the processes he is supervising and the goals the group is trying to achieve.

Lippitt and White show us the sort of group processes that conserve democratic values. But one strives for values through modification of process, inventing or creating whatever procedures will increase the efficiency of the sort of processes one wants. Thus "open-mindedness" is a criterion of democratic process. But it is not obtained by seeking open-mindedness; it is obtained by seeking to set up effective social inquiry. And when the conditions favor effective social inquiry, then people just naturally behave "open-mindedly."

As one moves from the face-to-face group to the extended society, the problem of achieving democracy becomes more confused. There is one simple answer, however, and that is that a nation achieves democracy to the extent that every group (formal and informal) is itself engaged in processes that conserve democratic values. Thus, for example, in the rebuilding of Hyde Park in Chicago, we used to feel that we must "hold the line" with every single group of citizens; and that if their voluntary organizations could all operate democratically, then the "will of the people" or the "greatest good of the greatest number" would emerge and dominate decisions (regardless of who made them) made on behalf of the whole community. The point is that if people are living democratically in their own interactive lives, then their decisions, whether of great or small importance, will be biased toward conservation of democracy. But note that the fundamental basis for democracy as the national political-social orientation is democratic living at the level of interpersonal interaction.

I note that much discussion of democracy as a national characteristic completely overlooks its base in interactive process. Such discussion concentrates on procedures, rather than processes, and mistakes means for ends. Thus, there are those who believe that majority opinion, elicited by secret ballot, is the will of the people, instead of being only one possible *procedure* by which, *under certain conditions*, the will of the people may be expressed. We tend to think of democracy in groups as a characteristic of process whereas democracy in societies is a matter of legislation and procedure. This is, I think, quite mistaken. The importance of laws and procedures is to set conditions, to define boundaries to freedom; but democracy boils down to how that freedom is exercised—that is, to characteristics of the processes the laws and procedures make possible. The problem at the national level is to

invent new procedures of communication and interaction such that people are emotionally involved in local inquiry into the meaning and implications of "national" issues as met in their own lives in their own communities. Then I think the will of the people will emerge and make itself known.

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*Britain's Scientific and Technological Manpower*, George Louis Payne.  
Stanford University Press, Stanford, California, 1960. 466 pp. \$8.50.

Professor Payne had produced an enormous and enormously painstaking analysis of the supply and demand for high scientific and technological manpower in Britain. His book is comparable with Nicholas De Witt's *Soviet Professional Manpower* (1955) and offers material of the same order as Dael Wolfe's *America's Resources of Specialised Talent* (1954) and the National Manpower Council's *A Policy for Scientific and Professional Manpower* (1953). The appearance of books of this kind encourages the hope, and confirms the possibility, of comparative studies of education in industrial society.

Leaving aside the detail, Professor Payne finds that British official estimates of demand are too small, that our gentlemen traditions threaten to reduce the necessary vigour of our response to these demands, but that somehow we will probably "muddle through." Referring (p 107) to an estimated demand in 1966 for 220,000 qualified scientists and engineers, Professor Payne judges that it is at least 10,000 short of the full requirement if nothing more dramatic happens than the continuance of present trends. The estimate of 220,000 requires an output of 17,000 per annum by 1966. The latest figure quoted of *actual* net output is 13,475 for 1958.

Britain is known as a traditional exporter of capital and the products of industry. In this book we are shown also the important role of these islands as exporters of the technical and scientific skills of industrial man. Between 1815 and 1914 over 20 million—the equivalent of more than half Britain's 1900 population—left the United Kingdom. About 13 million of these went to the U.S.A. and 4 million to Canada. Since World War II well over a million have emigrated, and many of these are trained men. "All told, one out of every five of the corporate members of the major British professional institutions is resident abroad" (p. 380).

Professor Payne has exploited the official sources with exemplary thoroughness. With these and the aid of such other authorities as Mr. Drew Middleton and Professor Dennis Brogan, he has produced a view of British education from just off the Isle of Wight, which the native seldom sees with such clarity. On the other hand he does occasionally see us as the British Tourist Agents would wish, as "a proud seafaring people" with "stoical determination under stress and—at crucial moments—a saving perspicacity" (p. 398). He is too generous. The modern history of British higher learning is a tale of hesitating, ungenerous and unplanned reluctance to accept the challenge of the technological age as our Victorian forbears faced the Age of Empire.

The relatively cheerful view expressed by Professor Payne is attributable

partly to his failure to use some of the more important unofficial sources such as S. F. Cotgrove's *Technical Education and Social Change* (1958). But mainly he has had the bad luck to be both "pre-Crowther" and "pre-Robbins." The former's official report 15 to 18 (Ministry of Education, 1959) has been followed by a powerful spate of educational criticism from within the British 'Establishment'. Even the sacred dogma of "the pool of ability" (p. 368) has been challenged as an agreed fact and exposed as a controversial point of view. And a committee has been set up under the chairmanship of Lord Robbins to look at Higher Education as a whole, the U and the Non-U.

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*Universities: Commonwealth and American; A Comparative Study*, Oliver C. Carmichael. Harper & Brothers, New York, 1959. 390 pp. \$5.50.

Half a century ago Abraham Flexner's sharp voice was heard in the land. His incisive report of 1910 exposed sham medical education of that day. Twenty years later his book, *Universities: American, English, German* (Oxford University Pres, 1930), was equally biting, penetrating, and critical. He found his university ideal of excellence alive in Germany, less so in England, and not at all in the United States.

"The American university is becoming more and more tumultuous," he wrote (p. 44). "A university is . . . not a dumping ground," he thundered (p. 27). "Universities . . . should not concern themselves with miscellaneous training at or near the vocational level," he warned (p. 172). A university catering to library science, business, home economics, journalism, extension and home study was, he charged, sheer commercialism.

Flexner and his imitators, Robert M. Hutchins among them, have spoken boldly against the university trends of their time. But they have not been heeded. The decisive trend has been in the direction of rising popular expectations. The press of numbers, the desire for professional training, and the demands of the supporting taxpayers have forced the university out of its ivory tower. What Flexner railed against has become inevitable. Universities have become utilitarian institutions.

Oliver C. Carmichael's book, *Universities: Commonwealth and American*, was published in 1959, the year Flexner died. Both men were connected with the Carnegie Foundation for the Advancement of Education, Flexner as researcher, Carmichael as president.

Carmichael, a former president of Alabama College and chancellor of Vanderbilt, is also a former Rhodes scholar who earned a degree and a diploma in anthropology from Oxford. His book reflects his thirty-five years of experience as high school and college teacher; elementary and high school principal; and college, university, and foundation executive. In 1957-58 he visited most of the Commonwealth universities he describes, conferred with their officials and scholars, and participated in discussions on their common problems.

His survey is broadly descriptive rather than an exploration in depth. The current scene is presented with sufficient background to give the reader an understanding of present operations, trends, and problems. These are projected for the next decade. The topics discussed are higher educational aims; organization; finance; student life; women students; extension;

the professions of law, medicine, teaching, science, and technology. There is a final chapter on problems and prospects and a concluding summary.

The pressure of rising enrolments and the east-west conflict provides the framework for Carmichael's analysis. Higher education in English-speaking universities will double in enrolment, from four to eight million students, in the next decade. This fact, plus the universities' key role in western survival, highlights the need for meeting current problems immediately.

Buildings and equipment will require additional government loans and grants. Staffing academic departments will continue to be critical, particularly in mathematics and science. Only a forthright reappraisal of the academic profession and a willingness to reward it with professional salaries and marked esteem will retain great teachers. Russia's high regard for and holding power over its teachers should be a sobering stimulus to English-speaking countries.

To merit respect and gain support, universities must improve in quality and service. Carmichael stresses the need for a major curriculum overhaul. What must be guarded against is loading the curriculum with redundant and over-specialized courses, a tendency arising from larger enrolments and haphazard planning.

Russia's Sputnik has made the fact clear that intellectual supremacy ultimately means world supremacy. The English-speaking universities, particularly in the United States, must raise their academic standards, but not by resorting to rigid selection entirely. To neglect the large average mass will only prevent their making the contribution they can make if properly educated. Here Carmichael parts company with Flexner.

As the east-west conflict continues, the search for talented students must be intensified and their training made effective. This search, Carmichael urges, must be for women as well as men. The fact that women constitute half of Russia's university enrolment should remind English-speaking universities that talent resides among women in the same proportion as among men.

To help solve these problems, Carmichael proposed a Commonwealth-American Commission on University Education working through existing higher education associations. It would collect data, disseminate information, clarify objectives, raise standards, encourage experiments, foster exchanges, gain public confidence, channel foundation funds, and in other ways help unify the English-speaking university world. As Anglo-American cooperation has been necessary in winning wars, so it is essential in winning the present ideological conflict.

Carmichael, like Flexner, is concerned with upholding the universities' highest ideals. "Universities," he writes, "have dealt with the moral, philosophic and spiritual issues of man and his society." He adds: "These still are as important as in the past" (p. 131). Yet Carmichael clearly accepts a trend that Flexner was loathe to accept, that universities must be public service institutions. He puts it this way: "University education, a private enterprise for more than seven centuries, has now become for all practical purposes a public enterprise" (p. 324).

For good or ill, now that the taxpayer has become the university's chief patron, the ivory-towered university of Flexner's dream is gone.

*Recognition of Excellence*, Adam Yarmolinsky. The Free Press, Glencoe, Ill., 1960. 334 pp. \$3.75.

In 1958 the administrators of the Edgar Stern Family Fund initiated a project to study means for facilitating the recognition and development of "intellectual and spiritual excellence" (p. viii). One of the early activities undertaken for the project was an inventory, conducted by Adam Yarmolinsky, of recent and current research pertinent to the study. The results of the inventory make up about two thirds of *Recognition of Excellence*. The final third consists of comments on Yarmolinsky's report by a group of consultants to the project.\* With two or three exceptions, the comments are not up to the caliber of what has gone before.

The inventory of current activities bearing on the fostering of excellence was purposely conducted within narrower limits than those set for the project. The inventory was focused on intellectual excellence only; spiritual or moral excellence and esthetic excellence, although within the scope of the project, were both excluded.

Limitation of the area to be covered to intellectual excellence is difficult to criticize. This form of superiority is much more easily defined and observed than is either spiritual or esthetic excellence. The difficulties faced whenever criteria of intellectual ability are sought apart from the capacity to satisfy school teachers are more than matched by criterion difficulties in the spiritual and esthetic realms. Further, schools and colleges constitute a well-defined segment of our society to which responsibility for the development of intellectual capacities is clearly given. A search for current activity directed toward the nurturance of spiritual or esthetic excellence could not be so sharply focused. Finally, probably partially because of its easier definition, intellectual excellence is the subject of far more research than is any other form of talent, ability, or achievement.

The difficulties faced in carrying a study of excellence beyond the limited but still broad area of intellectual ability and attainment seem, in themselves, to provide excellent reasons for undertaking a broader study. Intellectual accomplishments may be more highly prized in our culture than are esthetic accomplishments or spiritual excellence partly because Binet, Terman, and others were more successful in providing measuring devices for intellectual excellence than were those who made similar efforts toward defining and quantifying esthetic excellence or high moral character. Unless intellectual ability can justifiably be given precedence over other forms of excellence, should not serious attempts be made to bring to the other forms the same degree of attention now being given to intellectual development? And does not the question of precedence among forms of excellence itself merit attention?

The limitation of the report here reviewed to consideration of intellectual excellence does not imply a narrowing of the scope of the entire project. One may hope that the project directors, in approaching excellence along the broadest and best developed avenue, will not slight the more neglected areas.

Even with the limitation just noted, a broad, poorly integrated, highly

\* Paul Gross, M. H. Trytten, James M. Mitchell, John M. Stalnaker, Adam Yarmolinsky, Caryl Haskins, Nevitt Sanford, and Robert K. Merton.

complex field still remained to be covered. The completeness of the coverage achieved and the degree of organization brought to the material are a credit to the author. The organizational scheme is simple, obvious, and effective. Studies are grouped and discussed chronologically, those related to pre-school influences on excellence appearing first. Following in order are discussions of recent and current work pertaining to intellectual superiority in the elementary grades, junior high school, high school, the high school-college transition, college, advanced study, and the mature (and presumably culminating) years.

The book (or "working papers") effectively fulfills the purpose for which it was intended. The staff and consultants of the project, and the public as well, are given a clear picture of the efforts being made in this country to identify and foster intellectual excellence. Such a picture permits more effective identification than would otherwise be possible of those areas of study that show the greatest promise of bearing fruit and those that are currently unjustifiably neglected.

Among the major assets of the book (at least of that portion for which Yarmolinsky is responsible) are the clarity and conciseness of the writing. Perhaps because the author is not an educator, psychologist, or sociologist, the turbidity so often found in educational, psychological and sociological writing is absent. And here and there an occasional bit of gentle levity happily appears among the heavier, more serious phrases.

The heretofore neglected area that seemed to attract most attention from the consultants is the effect on the development of excellence of recognition for those who are its locators and developers. In focusing on this point, the consultants made the probably sound assumption that potential excellence does not always mature when unattended and unencouraged. What would be the general cultural effect of rewarding, as well as the high achievers, those who found, taught, and stimulated them? In spite of much discussion, neither the author nor the consultants felt bold enough to guess.

The effects of highly publicized awards on the observing public as well as on the recipient also provided questions the consultants found intriguing. Are those who notice awards stimulated to seek similar heights? Are those who receive the awards stimulated to higher achievement? Are awards too often only tardy recognition of earlier accomplishment, preceding an honored but unproductive later life? Here, at least partial conclusions were reached. If awards are to function as stimulators of the recipients, potential as well as accomplished excellence must be identified. A readiness to take risks then becomes desirable in those who give awards in spite of the danger of loss of prestige following an unproductive gamble.

In describing current research on the development of excellence, the author found it desirable to differentiate between the gifted, a term he applied to the top 3 per cent of the total population, and the academically talented, the upper 20 per cent. Yet even the top 3 per cent of a population the size of that of the United States retains a high degree of diversity. A discontinuity at some point above the middle of this group has been hypothesized; the generally positive relationship of other favorable characteristics to intelligence seems not to hold near the upper extreme. The extremely bright, perhaps the top 0.5 per cent, seem to perceive and react to their environments so differently than do their more ordinary contempor-

raries that sound procedures for the development of the moderately bright cannot be assumed to apply equally well for the extremely bright. Almost all the gifted (in Yarmolinsky's sense) reach college and therefore presumably do not contribute to a loss of intellectual resources. Yet one wonders whether the greatest loss of potential excellence is not among the extremely intelligent who function competently by ordinary standards but do not reach the heights of which they are capable.

That attention to the extremely bright would not be expended on an inconsequential few is easily demonstrated. In the United States are 180,000 people in the top 0.1 per cent of the population. Of these "one in a thousand," 84,000 are in the productive age range of 25 to 64 years. Probably 10,000 are in college and close to 40,000 in the elementary and high school grades. These figures are certainly large enough to justify efforts directed specifically toward the development of capacities found only in this intellectually potent group.

Valuable information on the development of excellence among the extremely intelligent, and among those of somewhat lesser intellect as well, is available in retrospective studies of people of great achievement. Some studies of this sort have been made and have been described in the book under review. But to the knowledge of this reviewer, no effort has been made to build predictive studies of undeveloped excellence from findings of retrospective studies of mature excellence. Nor does the number of studies of mature excellence reach even a small fraction of the number of studies focused on the embryonic excellence of the school and college years. Perhaps support for studies of human behavior is only beginning to reach the point where subjects other than the captives of school and college classrooms can be studied extensively.

Sociocultural determinants of intellectual achievement appear for discussion repeatedly throughout the book. Some of the most common, however, rather than providing a subject for intensive study, have only been noted by investigators as interesting side issues, subsidiary to some more immediate question. The underlying elements of their relationships with achievement have remained obscure. For forty years or more, investigators have been finding poor school achievement to be related to low socioeconomic status and to membership in certain ethnic subgroups. These latter two factors are not often satisfactorily differentiated, and their common underlying elements have only been assumed to be an impoverished intellectual atmosphere in the home, an absence of early contact with books and other reading material, and an emphasis on enhancing the family's economic rather than intellectual position.

Other frequently observed sociocultural influences are not so easily explained, yet still have been passed over as little more than interesting observations. Repeatedly, since the early reports of Terman's studies, high intellectual achievement has been found to be more common among eldest or only children than among others. Yet no one seems to have satisfactorily accounted for this phenomenon, nor even to have made serious efforts to do so.

Somewhat greater attention has been given to sex differences in intellectual achievement. These are usually attributed to differences in cultural expectations for the sexes, but only a few studies have been directed toward

elaboration of other underlying factors. The ready availability of differential cultural expectations as an explanatory concept, even though not adequately verified, may have discouraged more intensive study of the ever-present sex differences.

In contrast to the relatively neglected sociocultural areas just described, the influences of subcultures on intellectual attitudes and academic behavior are receiving increasing attention. The implications of membership in peer groups—small or large, well or poorly defined—are beginning to be studied at both the school and college level. At another level, studies of influences of peer cultures in an industrial setting have a fairly long history, but have tended to be limited to the skilled and unskilled segments of the labor force. Investigations that go beyond this limitation, however, have recently begun to be made.

Almost inevitably in an inventory such as that reported in *Recognition of Excellence*, an occasional omission occurs. One or two more studies worthy of inclusion can always be found, and exception can always be taken to the ways the field to be covered is defined. Largely ignored, for example, but properly so, was the multitude of studies of correlates of college grade-point averages. Such studies continue to be poured forth in an almost ridiculous attempt to predict precisely an extremely imprecise criterion. Less defensible is the slightly irritating abundance of editorial and typographical errors. These reservations are trivial, though, when applied to a well-written book that presents a clear and accurate picture of a disorganized but important field.

JONATHAN R. WARREN  
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*The Exceptional Child: A Book of Readings*, Edited by James F. Magary and John R. Eichorn. Holt, Rinehart and Winston, Inc., New York, 1960. 561 pp. \$5.50.

Though not new in the field of education, books of readings are becoming more numerous and popular. Harried professors and haggard librarians are finding that the best of these books encompass research material often assigned to large groups of students as "outside reading," with ensuing difficulties for the libraries, the students, and the professor. Beyond this perhaps overly practical consideration, books of readings have been utilized as starting points and motivation for intensive individual student research.

The present volume, though it has weaknesses, is one of the better compilations of pertinent research in a specific field. Improvement would call for revision in the technicalities of organization, such as the numerical designations for both chapters and selections, and a re-ordering of the areas of exceptionality covered; elimination of several intellectually and informationally arid selections; and the inclusion of a glossary to aid the student in the pronunciation and understanding of technical terminology.

Comparison of this book of readings with standard texts on the exceptional child has strengthened the reviewer's opinion that students of education could be lifted out of their intellectual kindergartens and professional featherbeds if the dry, styleless and hostility-breeding standard textbooks were relegated to the role of reference material. Magary and Eichorn make provision for this by indicating correlations between their book and texts

in the field on the inside cover of the readings. The need for wide acquaintance with authorities and research is particularly true for the field of special education, and college classes in which a standard textbook, and lectures based on them, are the major sources of information and responsibility for the student are limiting and irksome.

Magary and Eichorn's book of readings on the exceptional child is suitable for class use because it treats of all the generally recognized areas of exceptionality plus some vital ones seldom given cognizance as such. Among the former are the mentally, neurologically, orthopedically, visually and emotionally handicapped, and the gifted child. Areas of import to the regular class teacher or student of the exceptional child are those concerned with handicapping medical conditions, educational retardation, and children with cultural handicaps. Seventy-one selections, mainly from educational periodical literature published since 1955, have been carefully organized in eleven chapters with introductions by the editors to insure clarity and continuity of content. Variety in style of presentation by recognized authorities offers opportunity for discussion and impetus for further investigation. Repetition is minimal, and is concerned chiefly with the familiar generalizations of educational objectives. However, throughout the book there is a terrifying emphasis upon the present and future responsibilities of the regular class teacher in the education and guidance of all exceptional children. The fact is that the average teacher, except on individual initiative, does not have more than a cursory knowledge of any kind of exceptionality in children. This includes the commonly treated areas of the slow learner and the mentally gifted. This omission in the education and training of teachers has implications which colleges and universities engaged in their preparation must try to meet.

This book of readings is intended for use in undergraduate classes, which may account for the rather pedestrian styles and over-familiar content of a few of the selections, and for the fact that most of the language utilized is non-technical. But these points do not eliminate the possibility of using the book in graduate classes where much more can be required in the quality of discussion and research. Graduate students, for example, can be expected to delve into a wider and more complex range of supplementary reading and to engage even in practical research in order to substantiate, contest or further research in selected fields.

In the readings, material concerning children who are mentally, neurologically, emotionally or visually handicapped is extensive and well-selected. However, the section on handicaps in communication, or children who are deaf, hard of hearing or defective in speech, is noticeably weak and superficial. This constitutes a major deficiency in the book since so much depends upon the regular class teacher and special educator in the detection and treatment of these handicaps.

Also, too few curriculum areas are considered in the chapter on the educationally retarded. Major emphasis is given to problems in reading, but the book offers material repetitious of that given in established courses in the field. A fresh approach to some problems in learning to spell are offered, but one wonders whether researchers are ever going to offer practicable solutions to this old, old problem. Since most curriculum problems are within the scope of special methods courses, it does not seem advisable to include them here.

A particular strength of the book is demonstrated in its selections on children with social and emotional handicaps. Considering the nature and extent of such problems today, the knowledge and guiding principles offered are very worthwhile. Teachers, who are commonly expected to serve as substitute parents, counselors and character builders, are literally "hungry" for information and skills which will enable them, at least partially, to fulfill these roles.

Of special interest are the selections centered on children with cultural handicaps. Deprived homes, working mothers, foreign backgrounds, membership in minority groups, and the educational implications of the American philosophy of living, all present obstacles to normal growth and development which are greater and more serious today than ever. It is a chapter of particular significance because the average educator, generally a product of the American middle-class, has little understanding of the sociological origins of problems in educating children.

The gifted child is given last consideration in the book. Selections on the mentally retarded were offered in the first chapter. The positioning of these chapters does not indicate their relative importance as educational problems, but does emphasize past waste and lag in helping both types of exceptional children. It is hoped that current interest (and funds) will be maintained, and that the bandwagon will not once again become a caboose. Even with this possibility, one can judge from the selections in both areas that breakthroughs are being made. Experimental programs are proving to the timorous and backward that the mentally retarded have unexpected educational and social potential, and that the gifted benefit from partial segregation and accelerated programs planned to meet their needs and abilities.

The book provides organized informational content on the exceptional child and encourages discussion, debate, and further research. In the hands of professors and students who appreciate its possibilities, its use could lead to the preparation of exceptionally effective teachers.

KATHARINE C. COTTER  
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*Language Teaching Today*, Edited by Felix T. Oinas, Volume 26, Number 4, Part II of the *International Journal of American Linguistics* (special issue). Indiana University Research Center in Anthropology, Folklore, and Linguistics, Bloomington, 1960. 221 pp. \$4.00.

The 1958 National Defense Education Act, Title III, had a profound effect on foreign language teaching in the secondary school. Although the NDEA provides matching funds for a wide variety of materials and equipment, the bulk of the spending in the foreign language area has been on the construction and equipping of language laboratories. The number of such laboratories has increased from 64 in 1958 to 468 as of January, 1960.

"Language Teaching Today" is a special issue of the *International Journal of American Linguistics* devoted to the proceedings of a conference held at the University of Indiana to discuss theoretical and practical problems of audio-visual language teaching in the language laboratory. Aspects of the problems which evolve in the planning, development and programming of the language laboratory were discussed by experts in such

fields as psychology, linguistics, second language teaching, and administration. This issue of the journal is conveniently divided into five sections, each of which deals with some phase of the language laboratory.

The first subsection, entitled "Situation and Prospects," contains articles by F. C. Hutchinson (U. S. Office of Education) and Ellen Hocking (Purdue University). Hutchinson's article relates the impact of the NDEA and discusses, in a general way, some of the problems which have arisen out of the "language laboratory explosion," such as lack of materials prepared for laboratory teaching, the absence of equipment standards, non-standardized jargon, etc. The article by Hocking presents a Utopian picture of how elementary school children may some day acquire a second language. To learn French, for example, the child would be saturated with native French from talking dolls, French speaking Mickey Mouse cartoons, and films of real life situations projected on wall sized screens. Implicit in this article, as well as many of those which follow, is an uncritical acceptance of the "goals" of foreign language learning: the obvious, specific knowledge of the language in question; an understanding of a foreign culture; an increased knowledge and understanding of English. Never does anyone question the notion that foreign language learning is the best way to achieve the latter two goals.

Part II contains papers dealing with the selection of laboratory equipment and methods and techniques for the effective use of the laboratory. William Locke (M. I. T.), in one of the most analytic papers in this volume, describes some of the generally accepted desirable features of language laboratory equipment. Locke goes on to proselyte for the inclusion of facilities for recording the student's responses, but he is quick to point out that there are equally cogent arguments against the value of this accessory. Neither side is supported by research. Throughout this article Locke points to the areas which most desperately need empirical evidence to answer questions about equipment and methodology.

A. B. Gardner (U. S. Office of Education) attempts an answer to the question of how the teacher's time may be most effectively used in the laboratory. It is his contention that everything save "eliciting from the student natural performance in a language" can best be taught by machinery and graded taped exercises. From the beginning, the introduction and explanation of new material, drills, reviews, and even testing, would be handled by an unmonitored language laboratory. The teacher would then be free for the creative aspects of teaching.

Fernand Marty (Wellesley College) disagrees; he believes that only the classroom teacher can bring about improvement in such things as a student's pronunciation. He takes issue with Locke in that he feels that student recording is unnecessary or even detrimental. His views, however, lack hardheaded empirical research to substantiate them.

The fourth and final paper of this section consists of a description of how testing might be accomplished in the laboratory setting. One of the major problems arising out of the development of the language laboratory and the consequent shift of emphasis to oral production is that such skills are difficult to test. Pierre Delattre (University of Colorado) reports the outcome of an experimental test used to measure the progress of language teachers attending a summer institute. The scoring procedures are objective

and the general technique appears to be adaptable to many language laboratory situations.

The third subsection contains two papers which describe the birth of "typical" language laboratories, the problems encountered, and their solution. The remaining paper presents an overall picture of NDEA aid to Indiana schools. It describes the mechanics of application and offers advice to those seeking funds. Presumably NDEA Title III funds would be administered similarly in other states.

Section IV, "The Teaching Machine," contains papers by F. Rand Morton (University of Michigan) and by B. F. Skinner (Harvard University). Morton describes the development and outcome of an experimental program in the teaching of Spanish conversation via programmed tape. The students paced themselves and made the decisions as to the amount of study time necessary to acquire the various skills. The program was pronounced successful by students and teachers alike. From the successes and shortcomings of this initial program and based on the Skinnerian model of the teaching machine, Morton outlines the specifications for a complete language laboratory, which would function as a teaching machine to teach all of the elementary and some of the advanced skills in a second language.

Skinner's paper is disappointingly short. It covers in a general way his views on learning and the teaching machine. In addition, it provides a condensed version of his descriptive analysis of verbal behavior. It is unfortunate that he fails to point out how his machine might be used in teaching some of the traditional materials of a language course.

The final subsection contains two brief papers dealing with audio-visual aspects of foreign language teaching. The first paper by La Velle Rosselot (Otterbein College) emphasizes the potentiality of audio-visual teaching and describes a filmed text designed for college use. The second paper (by George Borgham, Wayne State University) accompanied a film dramatizing the effects of the audio-visual medium, particularly when color is added.

This conference was reportedly held "to discuss the theoretical problems in audio-visual teaching of foreign languages . . ." (p. vi). However, conference participants seem to have fixated on the audio aspects; relatively little attention was given to the visual component. In addition, only one participant seemed cognizant of the fact that the language laboratory has brought about a complete shift of emphasis in language learning programs. The traditional reading, writing, and translation has been sacrificed in favor of oral fluency. No one offers any rationale to justify the shift.

Since the conference was on "theoretical problems," this issue offers little to the language teacher who is faced with teaching via a laboratory for the first time, except whatever security she may derive from knowledge that she is not alone. To the administrator concerned with how to plan the construction of a language laboratory, this volume offers advice—proceed cautiously, talk to others to learn as much as possible, know your objectives. Perhaps the best advice would be to wait until there are some empirically derived answers to some very basic questions. To the researcher interested in improving foreign language instruction, this book raises a number of interesting questions, some of which are stated explicitly, others implicitly. Also, some interesting avenues of approach are outlined in those papers which were based on "experiments." It is comforting to know that many of

the conference participants are actively engaged in research on the very problems which the conference posed. Title VI NDEA funds are available to others interested in and capable of carrying out research in this area.

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*The Remaking of a Culture (Life and Education in Puerto Rico)*, Theodore Brameld. Harper & Brothers, New York, 1959. 478 pp. \$7.50.

The contributions by Professor Brameld to educational philosophy are of a substantial and dynamic stature. During the last few years his work has been largely devoted to the joining of cultural theory, derived in the greatest part from anthropology, to educational philosophy. His *Cultural Foundations of Education: An Interdisciplinary Exploration* (Harper and Brothers, 1957) is the most extensive and systematic analysis within this focus yet attempted, and will stand as a landmark for some time. These antecedent conditions give his *The Remaking of a Culture* a particular significance, for this book is a report of his application of the theoretical framework developed in his prior work to the analysis of education in the transforming culture of Puerto Rico. In doing so, he takes a bold step that many, if not most, theorists and philosophers never take; that of testing their theories in a "natural science" laboratory.

It is necessary to understand a little of what is in *Cultural Foundations of Education* in order to understand what was attempted in *The Remaking of a Culture*. The former is focused around three massive problems of interrelationship between education and culture: the problem of human order (as in the social structure of a society); the problem of cultural process (as in assimilation, acculturation, enculturation); the problem of goals (conceptualized as cultural values). The analysis ranges impressively through philosophy, psychology, history, sociology, political science, but particularly through cultural anthropology, seeking relevance and meaning for the restructuring of educational theory. And because Professor Brameld is avowedly a reconstructionist, in contrast to a perennialist, and distinct from an experimentalist, he is motivated in his search for relevance and meaning by the purpose (that for him is more than a hope) that through the restructuring of educational theory, education may be restructured, and through education, human society.

There is not space in this review to summarize the results of his search. *The Cultural Foundations of Education* is a coherent, systematic, even possibly brilliant exposition of a theoretical ordering of very complex relationships between two very complex orders of abstraction. The rest of this review will be devoted to the results of application of the theoretical structure in *The Remaking of a Culture*.

He defines his purpose: "It is to describe and interpret Puerto Rican culture and education with the hope both of increasing our understanding of the relations of each to the other and of providing constructive opportunities through which the culture may clarify and improve its educational philosophy and program" (p. 30).

He approaches the culture of Puerto Rico in terms of the three inclusive cultural categories; order, process, and goals, that are central to his pre-

formulated theoretical framework. His research procedure is unique. His sample is selected mainly through social consensus. This means that most of his thirty-six "respondents" as he terms them (anthropologists would call them "informants") are literally *elected* by the communities or strata they are intended to represent. Some were elected in a series of meetings with school faculties, student officers, and parent-teacher associations, from three "subcultures": a rural sugar proletariat, a traditional coffee municipality, and the urban middle class from one of the three largest cities in Puerto Rico. Others representing the "national leader" level were selected by a jury of eight national-level educators to represent such fields as government, literature and education.

He translates his theoretical framework directly into questions that he uses in interviews with these respondents. He varies his interview technique with the sophistication of the respondent to some extent, but the substance of the questions remains essentially the same.

He states that he actually studied the subcultural groups for "only a few weeks," though his total preparation for the study, in residence in Puerto Rico, and in becoming familiar with relevant materials, extended over a period of three years.

The findings are reported in terms of majority and minority responses to his questions. On the basis of his findings he makes recommendations for the reconstruction of education, many of them growing directly out of proposals offered by his respondents.

He states that the essential framework of theory and practice is applicable to many cultures but that the results of this application are not to be judged by conventional canons of social science research because they are viewed from an explicit viewpoint in educational philosophy.

My point of departure in critically evaluating *The Remaking of a Culture* is that in it Professor Brameld has not described and interpreted Puerto Rican culture and education. Rather, he has described and interpreted the Puerto Rican philosophy of culture and education, as given by a sample of Puerto Ricans charged with responsibility for representing Puerto Rico by their fellows.

The process of sample selection inevitably prejudices the results of any research. Respondents selected by a method of democratic consensus have by their very selection been put in a special role relationship to their own reference group and the alien researcher. They are no longer "ordinary" or "representative" people because the social process of selection has made them, by definition, different. The consequences of this are difficult to predict. One consequence, reinforced by the nature of the researcher's questions in this case, is a tendency to interpret behavior rather than describe it. The researcher is, therefore, at least one step removed from sociocultural reality before he begins his study. This is precisely why most anthropologists working in the field rely heavily upon participant observation—so that behavior can be observed directly under conditions where the actors are relatively (probably never wholly) un-selfconscious about being the cynosure for the observer. This cannot be done "in a few weeks" and is one reason most thorough pieces of anthropological field work take more than a year.

Problems of sample bias, and also of conceptualization, methodology and

interpretation will be further considered together. Professor Brameld is interested in finding out whether "... the explicit or ideological level on which Puerto Ricans, like all people, communicate their attitudes, policies, and doctrines to one another is or is not compatible with their implicit or metacultural level of experience" (p. 99). Through his interviews he finds that his Puerto Rican respondents enthusiastically support the ideology of democracy, but that at what he terms the "implicit level" idolize their leaders "... too abjectly for the good of their democracy" (p. 100). And a higher proportion of Puerto Rican citizens go to the polls to vote than do members of most North American communities, but they tend to think that the elected leaders should decide all crucial questions once in office. In other areas of behavior the same kinds of discrepancies are revealed. Christian ideology completely repudiates both premarital and extra marital sex relations. This he regards as explicit culture. But at the "implicit" level "... secular cultural ideology tolerates if it does not openly condone these relations" (p. 107).

What Professor Brameld calls *implicit* culture reads to me, as an anthropologist, like *real* behavior, as contrasted to *ideal* norms for behavior. If secular cultural ideology tolerates if it does not openly condone premarital and extramarital sex relations, this is not an *implicit* or *covert* cultural pattern.

What Professor Brameld is describing here may also be analyzed as a discrepancy between folk culture formed out of traditions like the *personalismo* tradition (great respect for persons in positions of authority functional in the paternalistic family), or the *machismo* pattern (the ideal of masculine virility) that are a part of the Hispanic cultural tradition, and North-American-oriented norms. He cites these traditions and describes them as "implicit" patterns. To me they appear to be acknowledged norms and therefore not implicit or covert at the folk culture level.

I do not wish to argue that the discrepancies revealed are of no interest or relevance. I want to point out that the researcher is not likely to discover *implicit* cultural patterns by direct questioning—if *implicit* means *covert* (as Professor Brameld says in the *Cultural Foundations of Education*) and *covert* means virtually unconscious or at least non-verbalized. Behavior must be observed in many situations *as it occurs*, and *covert* patterns inferred from this observation. Asking informants about *implicit* cultural patterns is uncomfortably like asking a patient in psychoanalysis to describe his unconscious. The answers Professor Brameld received are what one can get by using these respondents and applying direct questions to them. The research method and sample therefore limits the degree to which the intended outcomes of the research can be secured.

His approach to the problem of discovering whether Puerto Ricans are thought to exhibit more activistic than deterministic attitudes presents some of the same and other difficulties. He wants to find out whether Puerto Ricans think culture determines what men are, or whether they think that "men make culture whatever it is." He finds a strong consensus in favor of the second position, which he terms "activistic" (and favors himself). But would respondents who are the representatives of their communities elected by school faculties and P.T.A. groups deny that "... through planning and social experimentation they can gradually lift them-

selves by their own bootstraps" (p. 118)? I am made uncomfortable at this point both by the nature of the sample and also by a bias that I think Professor Brameld injects into the formulation of this and other questions and interpretations.

As a committed reconstructionist, he objects to any form of cultural determinism. To be sure, ascribing a metaphysical force to culture, as do the "culturalists" that he cites and rejects, is to be rejected. But one cannot reject cultural determinism on these grounds—as Professor Brameld appears to do in much of the mood of the book. Man's culture is antecedent to his very existence. A culture, or part of a culture, is a *heritage* that molds and influences even the ways, or perhaps particularly the ways, in which a people can conceive of or implement change. This in fact, is what, in part, Professor Brameld is researching, but his bias against cultural determinism and for reconstructionism is so deep that he comes close to denying it at times.

I must give Professor Brameld credit for stating his philosophical position, though stating it does not reduce its biasing effect. I think he is caught on the horns of a dilemma: how to use the culture concept as his major analytic tool without acknowledging that culture is tradition and means heritage. He would be more at ease, I think, in view of the demands of his reconstructionism, with models derived from experiments in group dynamics, where behavior is in constant flux and there are no traditions. But these models would be inadequate for the task he embraces, so he is forced to use a concept that is not entirely congruent with his philosophical position, and perhaps too conservative to provide an adequate analytic framework for the study.

During the course of reading *The Remaking of a Culture* I have also been frustrated by the level of generality of the questions asked and the answers reported. For example Professor Brameld at one point wants to find out what the "subcultural judgments" were concerning why Puerto Ricans hold the values they do, "...whether because of their biological makeups, or their minds primarily, or their culture primarily" (p. 270). He reports the answers: "No one held that the biological is the basic source of values, but two did hold that body, mind, and culture each contributes about equally, while another thought mind and culture, but not body, do so. Five were sure that mind (which some respondents may have conceived in a spiritual or idealistic sense) is the most important factor—one student respondent reminding us in good Aristotelian fashion that a body without a mind is still not a man. Another respondent pointed out, however, that a brilliant mind can sometimes produce more evil than good. The rest, again a substantial majority, agreed that culture is the primary source of human values; hence body and mind are secondary factors. In the words of one panelist, 'Culture makes the man'" (pp. 270-271).

Professor Brameld anticipates reactions such as mine, and states that "Philosophical or metacultural research is just as legitimately based upon synoptic questions as conventional empirical research is not" (p. 434). He compares this approach to the anthropological: "...anthropology is weaker in its generalizing contribution than its particularizing ones."

But generalizing should not depend upon general answers to general questions. I believe that it should consist of statements generalizable to

similar situations (with appropriate modifications), concerning the relationships of forces, or variables, in some operationally definable process, based on detailed (and most usefully—behavioral) answers and detailed observations centering on highly specific questions.

The critical reaction that underlies much of what I have said so far is that a theoretical system, such as Professor Brameld has constructed, cannot really be applied and tested by converting its central propositions directly into broad questions to be put to respondents. All questions become leading questions when this is done, and the researcher finds out what he "knew" already—filled in with verbal content *about* a culture as perceived and defended by his respondents. A theoretical system should, rather, provide leads, hypotheses, guides, telling the researcher where to observe what data. He pursues these problematic leads wherever they take him, observing relevant behavior, reformulating his hypothesis, then searching anew. Otherwise there is an inevitable generality, rigidity, and predeterminacy to the procedure and the results.

The education side of *The Remaking of a Culture* has not been emphasized in this review because the problems of methodology and cultural interpretation have seemed more important. In general, the proposals to restructure education in Puerto Rico are congruent with the mood of the book and the generalizations cited for respondents. Some of them sound exciting. Few of them appear to grow directly out of a necessary logic imposed by empirical data. And nowhere is the classroom, grass-roots level of educational process described—a level that I believe must be studied in order to make the most meaningful conjunctions between "life" and "education" anywhere.

In conclusion I want to say that anyone who claims an interest in education and the cultural process should read both *Cultural Foundations of Education* and *The Remaking of a Culture*. The one is a beautifully articulated theoretical structure, the other is a significant attempt, marked by definite weaknesses, in my opinion, to make the structure operational. Both are daring attacks on a crucial problem of our time—to try to understand education as both a product and cause of the sociocultural environment in which it functions. I join my colleagues in both anthropology and education in the hope that Professor Brameld will continue attacking these problems with his usual vigor, and in complimenting him on his audacity.

GEORGE D. SPINDLER  
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#### A reply by Professor Brameld:

Professor Spindler has invited me to comment on his thoughtful critique of *The Remaking of a Culture*. I appreciate the opportunity because we agree that the kinds of theory and research in which we are both interested lie on the cutting-edge of interdisciplinary explorations. We both therefore agree that a great deal of trial-and-error, of inadequately formulated concepts, and of clumsy empirical methods inevitably occurs when three such vast disciplines as anthropology, education, and philosophy are channeled into a single enterprise. Difficulties are compounded by the realization that each discipline, taken separately, is saturated with its own inconsistencies

and confusions of principle and practice. No behavioral science, moreover, is less immune to these difficulties than the one in which Professor Spindler has specialized. Viewing anthropology as carefully as I can from the vantage point of educational and social philosophy, I see increasingly how young it really is—how its vitality derives in considerable degree from this fact at the same time that its own theoretical underpinnings as well as its research procedures are anything but firmly established or maturely refined.

I have no desire to defend my own explorations of Puerto Rican culture and education against Professor Spindler's helpful strictures. Indeed, I am disappointed only that he had opportunity to consider so few of many that could have been raised. It does seem fruitful, however, to consider his observations further in order that both of us—and others—may improve upon our efforts to build the much needed interdisciplinary approach to human problems that educational anthropology heralds.

The procedure of selecting respondents by the democratic process that I have elsewhere called the principle of "social consensus" is surely controversial. I still recall how startled the late Robert Redfield appeared to be when, on a visit to Puerto Rico, he was told of this heresy. Interested students, however, should examine the rationale for this procedure in my "Notes on Methodology" (pp. 427-431, *The Remaking of a Culture*). It consists of three principal phases. First, in an applied study with implications for practice, respondents of influence and prestige were needed who could help us enlist their schools and communities not only in examining themselves but in implementing proposals arising from our research. Second, the non-expert, grassroots character of the several local panels of respondents provided the kind of evidence, attitudes, and opinions upon which every school system in any democratic culture is, for better or worse, erected. Third, social consensus is a still developing methodology for seeking truths and values in human situations; for it to operate effectively, maximum data, maximum communication, maximum agreement, and maximum testing are all necessary. The process as utilized in the Puerto Rican study through the utilization of democratically selected respondents never perfectly met these criteria, but the aim always was to do so as far as time and other limitations permitted.

Whether more dependable results might have been achieved by different methods (for example, the more orthodox ones of anthropologists) could only be determined by comparison with them. To some extent, indeed, this was provided; our findings were carefully compared with all of the relevant Puerto Rican studies available at the time. The results of such comparison are reported in the volume; they show that in most cases the findings of other studies and our own confirmed and reinforced one another. In some cases, however, our study yielded significant cultural and educational results that other studies had failed to consider, while some of the latter yielded data that ours did not.

The kinds of results and data in which the greatest reinforcement occurs embrace such typical cultural phenomena as the family, the class structure, modal personality, and the dynamics of culture change—spheres to which the study gives a good deal of attention. The areas where there is least overlapping with and support from other research studies of Puerto Rico are the ones which others have largely neglected and which Professor Spind-

ler selects for most attention—those having especially to do with cultural configuration. The question, for example, of how one gets at the implicit culture, central to any configuration, is a perplexing one. The assumption I made was that, if one uses enough concrete examples in tackling a problem involving, say, democratic or moral attitudes, one may approach the implicit level of meaning less by way of direct answers to questions than by way of inferences from them.\* This I tried to do as often as I could in probing the value orientation of grassroots respondents. In the type of questions asked the panel of national leaders, however, my assumption was that men of their sophistication would be able to discern more directly than the other panel some of the compatibilities and incompatibilities that might prevail between the explicit and implicit levels of culture.

Nevertheless, Professor Spindler is right in finding too many of my questions over-general and thus the answers also. I agree, too, that the terms "implicit" and "explicit" are not as accurate as "real" and "ideal" to characterize some of the material I was trying to comprehend. But I hope that the kind of elusive attitudes and correlative behaviors in which I was especially interested remain a legitimate, if still usually neglected, concern of research by students of education-and-culture. When they do become a concern, it is surely desirable to achieve still more immersion in "socio-cultural reality" than I was able to achieve during my nearly three years in Puerto Rico—years, incidentally, in which I did examine classroom processes directly, many of them utilized in the course of drawing reactions from my respondents.

At the same time, let no student forget that the verbalized data a researcher obtains about values or other aspects of any cultural configuration, whether implicit or explicit, real or ideal, are bound to reveal a degree of abstractness in so far as they seek to characterize anything more than some idiosyncratic fact. The question that anthropological methodology has not sufficiently clarified is not how to avoid generalization, for most symbolism is just that, but how to increase its reliability. Professor Spindler suggests the need to base it not only upon "specific questions" but upon "detailed observations" and of course he is correct as far as it is possible to do so. Cultural phenomena involving underlying values and attitudes are by no means, however, always specific or observable. This is one reason why anthropologists themselves so often resort to informants whose reports to them of cultural meanings are not only entirely verbal but sometimes sweeping in their portrayal of customs, religions, or other cultural features.

The difficulty of communication that all of us confront when we try to study the complexities of human order, process, and goals is exemplified by Professor Spindler in questioning the polarity of activism-determinism as I tried to operate with it. Two points may be made here. The first is that respondents were not necessarily activistic because some of them represented school constituencies. The implicit or real culture of Puerto Rico has been, until recently, largely deterministic if not fatalistic (as, indeed, has much of Latin America). A shift to a more activistic orientation is now occurring, partly because of education, certainly, but still more because of

\* For a fuller description of this technique, see my "Explicit and Implicit Culture in Puerto Rico: A Case Study in Educational Anthropology," *Harvard Educational Review*, Vol. 28, No. 3, pp. 198-200.

remarkable transformations in economic, political, and other social institutions. The second point reveals a difference between Professor Spindler and me as to another generalized concept—culture itself. That my own view is strongly activistic is true, although perhaps the single most important lesson that I have learned from anthropology is the stubbornness of cultural patterns and their resistance to deliberate, organized change. An activistic bias, however, is not necessarily disproved by asserting a deterministic one against it. Do anthropologists really agree that "man's culture is antecedent to his very existence" or that "culture is tradition and means heritage"? Some distinguished anthropologists do hold this kind of interpretation, of course, but others do not—the late Clyde Kluckhohn being one, if I understand him, the late Bronislaw Malinowski being another, and A. Irving Hallowell being still another.

Educationally, I find the term "enculturation" operationally most fruitful when it encompasses both the transmitting and innovative dimensions of learning and teaching in their comprehensive sense. Thus, if it is legitimate to think of culture itself in both of these perspectives, then activism as well as determinism have something important to tell us as we interpret the school's agential role in the enculturative process.

I hope that the model utilized in Puerto Rico may become the point of departure for other and much better models of action research in the future. Another model, for example, might be constructed upon a more heavily deterministic assumption about the value of culture. In that case the resulting study should be examined for any indications that its empirical findings and recommendations were accordingly weighted in behalf of that assumption, just as I am sure Professor Spindler is correct in pointing out that mine were weighted in an activistic direction.

One more point of practical importance. Professor Spindler notes that my field research was limited to a few weeks. This statement should, of course, be qualified by the fact that he is referring to the actual interviewing schedule, and that a great deal of direct contact with and observation of the culture occurred both before and after this schedule.

The question I wish to raise is whether anthropologists should not revise their standard contention that field research requires something like a year or more to produce useful results. This is no doubt an admirable rule, but can we learn nothing important about cultural behavior unless we follow it? The concepts of anthropology, operationally practiced, enable average citizens rather quickly, I contend, to begin to perceive and react to their environments differently than they would have without them.

Believing this as I do, and having the greatest respect for the contributions that anthropology can make to education, I have dared to commit even greater heresies since returning from Puerto Rico. At Boston University, I conduct a course in which students and I make field trips of one or two days each. Before making them, we do our best to understand the theoretical and practical import of such central concepts as acculturation, relativism, and perhaps a half-dozen others. We try to learn all we can of the areas to be visited. Also, we sometimes role play before actually entering a "subculture" such as the French Canadian community in Rhode Island or the Negro community in South Boston. The students do not become anthropologists! They do discover by direct contact that these

concepts make a difference in their own experience. I quote *The Remaking of a Culture* in behalf of this contention (p. 427):

Anthropology is not an exact science and it is still undergoing rapid development. In every project, the significant question is not: "What can the investigator achieve according to ideal standards?" Rather it is: "What can he hope to achieve within the limits of his resources?" If he accomplishes his aim, he will claim no less and no more than his evidence and his guiding theory allow.

THEODORE BRAMELD  
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*The Language of Education*, Israel Scheffler. Charles C Thomas, Springfield, Illinois, 1960. 108 pp. \$5.50.

This is a truly creative addition to the philosophy of education. As with most original efforts its most obvious quality is its simplicity. In this book Mr. Scheffler demonstrates the use of the philosophical method for treating specific educational problems that he had sketched programmatically in an earlier article, "Toward an Analytic Philosophy of Education."<sup>1</sup> Illustrations of the use of this method by other writers have been presented in an earlier volume collected and edited by Mr. Scheffler, *Philosophy and Education*,<sup>2</sup> but there his role was that of commentator and interpreter, drawing out the implications for educational theory and practice of articles not originally intended as exercises in educational theory. In the present volume the author himself adopts the philosophical method that has been used successfully in other contexts and applies it to issues of central importance in the field of education.

The novelty and value of the book lie in its use of modern philosophical techniques in treating specific and practical educational problems. The principal technique used is the analysis of language. Yet the examination of educational language does not stop at the semantic level, but continues until the logical implications of these analyses for the treatment of specific educational issues have been realized.

On the assumption that one of the valid tasks of philosophy is the *clarification* of issues and the logical analysis of the bases of and relations between educational ideas, the author examines typical educational notions as they are exemplified in statements drawn from common discourse and from educational theory. The focus is on the logic of the ideas underlying educational statements, rather than on analysis of the statements themselves, although the latter is an essential part of the study.

The procedure is most fruitful. Beginning with an insightful classification of categories of definition, we move to an examination of typical definitions of "curriculum" that reveals not only the range of meanings underlying the term, but also of the word, "education," itself. This application of the author's method leads to discussion of the cluster of unexpressed attitudes and beliefs regarding subject matter, teacher role, and school responsibility that are implied in even apparently neutral defin-

<sup>1</sup> *Harvard Educational Review*, 24:4, 223-230, Fall, 1954.

<sup>2</sup> Boston: Allyn and Bacon, 1958.

tions of basic terms. The analysis serves as both a revelation and as a caveat to explicate not only the implicit notions underlying key definitions, but also the ethical considerations that result from embracing a given definition and applying it to educational practice.

This treatment is continued in a chapter on educational slogans, which are particularly susceptible to this type of analysis. Again, the objective is not merely to point up deficiencies in the slogans themselves, but to examine the more sophisticated ideas that prompt them. The next chapter deals with the frequently used educational metaphors in which education is discussed in terms of growth and cultural continuity. This treatment emphasizes the limitations of the use of analogy in educational discourse, a practice that has been employed uncritically throughout the history of educational theory. The chapter is not an indictment of the use of metaphor in educational discourse, but a warning against accepting a single and necessarily limited metaphor as valid and exhaustive. Here the emphasis, as in other sections of the book, is on the complementarity of diverse definitions and descriptions that make up the discourse of education.

Two concluding chapters analyze the central notion of *teaching*. This discussion culminates in a schema for differentiating among the various senses of the verb "to teach," and a consideration of the relative justifiability of competing definitions. This section also sheds considerable light on such issues as professionalism in teaching, the delineation of teacher role, and the implications of different conceptions of teaching for the freedom of both the teacher and the learner.

The great virtue of this book is its directness and specificity in treating notions that are of central importance in many educational contexts. It is the first example that we have of an extensive systematic use of the philosophical procedures that have been employed so successfully in other fields, especially ethics. Mr. Scheffler's indebtedness to other philosophers of the modern school is evident—Gilbert Ryle, C. L. Stevenson, C. G. Hempel are most prominent. He draws heavily on these authors both for insight into basic philosophical issues and for philosophical method.

This book will have a great impact on educational philosophy and will probably stir considerable controversy. Many philosophers of education will be impatient with the precision of argument and the exactness of style. Others will judge the contents to be trivial in light of the enormous scope of problems with which the philosophy of education has been traditionally concerned. We find no references to schools of philosophy or other familiar devices for organizing educational ideas, for it is Mr. Scheffler's explicit aim to avoid such categorization. In rejecting this view and focusing on educational notions, Mr. Scheffler presents us with working examples of a completely different view of the nature, function and scope of educational philosophy. It is his position that philosophy of education must direct its attention to the analysis of educational problems and practice, rather than to the deduction of imperatives from first principles derived from synthetic statements in the major branches of philosophy. This is the procedure characteristic of the study of ethics since G. E. Moore, and implies an emphasis on common sense and on the analysis of ordinary discourse. The result is a much more humble role for educational philosophy, but one that can be very fruitful in clarifying vague concepts.

Other critics will claim that philosophical analysis that ends in mere clarification is unsatisfactory, and that positive suggestions for educational policy should come from the philosopher. This is a point of view that has gained recent ascendency among many philosophers who feel that the time has come to go beyond analysis and toward synthetic statements which, to be sure, would not be intended to serve as prescriptions, but rather as enlightened suggestions for improvement in policy. Philosophers often make these statements, but do so *qua* citizens rather than *qua* philosophers, thus cultivating a rather convenient schizophrenia.

There is justification for this criticism in the field of ethics, where the stables are much cleaner than they were before the analytic movement began. Yet in the field of educational philosophy the use of analytic techniques to clarify issues is practically non-existent. The field can benefit greatly from this type of analysis. Yet this book is not confined to a sterile use of philosophical antiseptic. There are many tentative suggestions regarding policy that derive from the logical analysis of central issues. They do not go as far as some would hope, and do not approach the extensiveness of Mr. Scheffler's positive statements elsewhere.<sup>3</sup> Yet in the final analysis this criticism is unfair. The aim of the book is to accomplish for philosophy of education what has already been successful in other fields, and it succeeds admirably in attaining this objective. Perhaps in future discussions Mr. Scheffler will give us the benefit of his positive suggestions for educational direction.

This book will be of interest to all students of philosophy of education, but it will be best understood by and helpful to philosophers of education who are seeking a fresh approach to the problems of their field. The list of issues for further study that closes the book should prove to be provocative for all working philosophers of education.

REGINALD D. ARCHAMBAULT  
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*Education for Effective Thinking*, W. H. Burton, R. B. Kimball, and R. L. Wing. Appleton-Century-Crofts, Inc., N. Y., 1960. 508 pp. \$6.00.

The publication of this text reflects increasing professional and public concern about the realization of significant educational objectives. Papers at professional meetings and in the literature are peppered with eloquent pleas for teaching to these more significant objectives (i.e., "problem-solving behavior") and evaluating the more pertinent learnings (i.e., "critical thinking"). The most recent investigations into the cognitive processes relevant to learning have been leading to a reappraisal of the importance of capability for rote acquisition and hence of the validity of IQ tests. Earlier endeavors in behalf of "fast learners" and "good retainers" are being supplemented by a current emphasis upon creativity. Educators have been devoting increased attention to teaching procedures designed to facilitate and stimulate thinking.

Thus a book about thinking is most timely. A good book would be a tremendously important contribution. Although the fundamental ingredients for a good book are contained in *Education for Effective Thinking*, they are effectively camouflaged. Hence this is a very difficult review to

<sup>3</sup>See especially his statements on curriculum in "Justifying Curriculum Decisions," *The School Review*, LXVI:4, 461-472, Winter, 1958.

write. The book is poorly written and contains evidence of naivete in certain crucial areas. These weaknesses seriously blunt the potential impact of the work in spite of its strengths.

Writing style is admittedly largely a matter of taste. However, since the objective of writing is to communicate, overly wordy, pedantic or patronizing writing is a real impediment. Portions of the book are susceptible to all three criticisms.

The authors seem unsure of the level of their audience although they are writing specifically for teachers in service and in training. The text is documented by frequent quotations and references to the literature. This air of scholarship is reinforced by the use of specialized (but undefined) terms like *Venn diagrams* and *null hypothesis*. The reader is thereby made to feel a partner to an intellectual excursion. Lest he take this partnership too seriously, however, the reader is abruptly shocked by lines like, "No one wants to be so open-minded that his brains fall out . . ." (p. 226). As if to assure the reader further that he is not yet a scholar, almost everything in this book is reduced to a list. Without counting further, at least forty lists of things were discovered in the first seven chapters. Such lists may be valuable aids to retention, but their value as stimulants to thinking is open to question.

It is impossible to leave the matter of writing style without a comment about word usage and grammar. All textbook-writers ought to be impeccable in this regard. It is disturbing to see evidence in a text on thinking of a kind of disrespect for language that can only lead to sloppy thinking. The statement, for example, that, "Class operation went on for a period under the different hypothesis . . ." (p. 146) really means that classes were taught under different conditions to test certain hypotheses. Similarly, sentences like the one beginning, "Books on logic, a few of them, do not . . ." (p. 143) should have been blue-penciled in manuscript.

It is apparent, when content is considered apart from the style in which it is presented, that the authors sometimes get in over their heads. This is particularly true of certain psychological concepts. *Attitudes, feelings, drives, and motives* all constitute a kind of amorphous intervening variable; "conditioning" and "learning" are sometimes used interchangeably; and innate characteristics or functions are erroneously suggested by reference to the "naturally shrewd person" (p. 64) and the exposition that the "... mind naturally . . . begins . . . to suggest answers . . ." to a problem (p. 64). The psychology of learning has progressed much further than all of this would seem to indicate. Furthermore, although the authors give evidence of awareness of the value of empirical item analyses for test construction, it is surprising to see them suggest such analyses for diagnostic purposes but not for item revision.

Fortunately, there is a happier side to *Education for Effective Thinking*. Most readers will find it stimulating in spite of its defects. The topical organization is excellent; the examples are pertinent; and the viewpoint that pupils must be aided to think rather than to become mere repositories is laudable. Thus the heart of a really good book is here. Like the embryonic stage play on tour before the opening, however, it would profit tremendously from some revision.

DR. LAURENCE SIEGEL  
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*Anxiety in Elementary School Children*, Seymour B. Sarason, Kenneth S. Davidson, Frederick F. Lighthall, Richard R. Waite, and Britton K. Ruebush. John Wiley and Sons, New York, 1960. 351 pp. \$7.75.

In attempts to evaluate theory and accompanying hypotheses in the behavioral sciences, educators are usually restricted to findings from one study, or at best to a collation of several isolated studies. One of the very rewarding features of this book is the fact that the reader can evaluate the researchers' theory, hypotheses, and findings within the context of a planned web of interrelated quantitative studies.

The authors trace the progress of their six-year (and continuing) series of researches at Yale University. The long range purpose of the project is to test hypotheses deduced from psychoanalytic theory; specific problems concern the measurement, the effects, and the antecedents of the anxiety construct. A still more immediate problem is to identify "discrepancies between potential and performance" (p. 1), using "test anxiety" and test performance for the major variables, with elementary school children for the samples.

The authors review relevant past research as a first step in the buttressing of their own hypotheses. While the scarcity of prior mature research on anxiety (plus the complexity of the anxiety construct) permits only vague indications as to possible supporting evidence, the selection of research reviewed does provide some assurance that the authors' hypotheses are potentially fruitful.

The problems of obtaining reliable scales to measure anxiety occupied a sizeable share of the researchers' energies. Two scales were developed, one to measure children's test anxiety and one to measure children's general anxiety. While these two anxiety scores were strongly correlated, the test anxiety scores tended to be the most useful for predictive purposes; both scores are used as measures in many of the studies. One valuable byproduct of the project is the increased information gained from the analyses of these self-report questionnaires. Traditionally, it has been assumed that the degree of defensiveness of a testee can be detected through incorporating a lie scale within the personality questionnaire. Embedded in the general anxiety scale was a lie scale. The authors report fairly strong, negative relationships between the lie scale scores and each of the anxiety scores. This lack of independence lessens the lie scales' usefulness for checking on the reliability of the anxiety scales. Additional studies with other anxiety scales demonstrates that the relationships between lie scores and anxiety scores vary in strength as a function of the item content of the scales, suggesting that the lie scores are not adequately measuring a general defensiveness.

Also bearing on the reliability of the anxiety scales was effect of position, i.e., the finding that upon a second administration of the scales to the same subjects, lower anxiety scores were obtained. Interacting with the position effect was the factor of interval of time between the two administrations and the factor of who administered the test (teacher or researcher). While the factor of position effect may introduce serious sources of error for research designs utilizing mean scores, the authors demonstrate that in correlation analysis the predictive powers of the anxiety scales are not significantly affected.

Pertinent to identifying "discrepancies between potential and performance" are the findings of moderately strong, negative and significant correlations between test anxiety scores and I.Q. scores, and between test anxiety scores and general achievement scores. Other researches indicate that this correlation is largely attributable to test anxiety depressing intellectual test performance, rather than lower intellect creating test anxiety. There is also evidence that the characteristics of the task measures used (testlikeness, reading requirements, and cultural familiarity) will partially determine the impact of test anxiety. The results of these studies bear out the hypotheses, deduced from psychoanalytic theory, that high anxiety will have debilitating effects on test performance in those instances where the testee senses danger to self.

Another series of studies was designed to test hypotheses concerning the effects of anxiety on less structured problem solving tasks (responses to situations such as the Rorschach and the Witkins Embedded Figures Test). In intelligence and achievement tests, the testee knew that his answers were either right or wrong. In the less structured test the testee has the opportunity to make varied responses; he is instructed that more than one response is appropriate. When these less structured problem solving tasks do not permit the child to fulfill dependency needs, the high-anxious child performs more poorly than the low-anxious child. But when the task permits the testee to be cautious and to receive interpersonal support from the tester, the high-anxious child tends to do as well or better than the low-anxious child. The authors' psychoanalytic explanation of these results is that the high-anxious child cannot respond creatively to less structured and unfamiliar problem-solving tasks. His unfulfilled dependency needs increase his immediate anxiety with a resulting reduction in perceptions of possible alternative ways to approach a solution; and his attention is unduly focused on non-task matter, with a resulting loss in objectivity. However, when the task calls for cautiousness, and when the dependency needs of the testee are fulfilled, the more anxious child is not handicapped and may be in an advantageous position.

In an attempt to provide additional validation of the anxiety scales, and also to test certain implications of psychoanalytic theory concerning the origins of anxiety, the parents of the children were interviewed. The results demonstrated that mothers of high-anxious children tended to be more defensive in reporting on anxiety behaviors of their children; their reports did not provide highly accurate information. Father's reports were more objective and did supply validation support for the anxiety scales. The authors suggest that the closer mother-child interpersonal relationship, in contrast to the father-child relationship, has perhaps misled some past researchers in child development studies to conclude that the mother is the best source of information. Misinformation would be especially likely in a study of personality factors, where the mother may feel self-threat when asked certain questions. The interview of parents, plus data from the children, provided some evidence to support the psychoanalytic hypotheses that the high-anxious child has a self-derogatory image of his body, has greater tendencies toward self-aggression, and has unusually strong dependency needs.

In several of the studies, variations were found between the boy and the

girl samples. It is not clear whether these variations are due to differences in degree of specific anxieties between the sexes, to differences in the reliability of the scales for each sample, or to personality differences of the sexes which interact with and change the effects of anxiety. Despite the fact that boys, in general, had lower anxiety scores than girls, predictions were firmer for the boy sample.

It is also of interest that attempts to validate the pupil self-report anxiety questionnaire through teacher reports of students' anxiety resulted in only moderate correlations. The authors conclude that their procedures for obtaining children's anxiety scores from teachers were unsatisfactory.

The authors anticipated that their studies would facilitate the identification of pupils who are disabled by anxiety. They were also interested in developing classroom procedures for aiding these children. Due to the problems in the measurement of anxiety, and due to the fact that the scales only permit consistent prediction of the effects of anxiety in the boy sample, the authors do not consider their work sufficiently advanced to warrant practical application.

Some of their suggestions concerning the educational implication of their studies will be of interest to the profession. The bright but highly anxious student is seldom considered by teachers as a "problem"; actually the more than adequate school performance of such students frequently masks their disability in handling unstructured problems (usually not encountered in academic subjects), and therefore lessens the chances that anyone will attempt to help them overcome their handicap.

The point is made that predictions for academic success based on I.Q. may not be affected by the anxiety factor; high anxiety students who underachieve on an I.Q. test can be predicted to underachieve in their future academic work. However, in making predictions for creative problem-solving success, anxiety becomes a factor. The highly anxious, high I.Q. students may do very well or very poorly on the latter type of criterion, depending upon the extent that student cautiousness and dependency (variables associated with anxiety) are a help or a hindrance in performing the task.

For students with low and average I.Q. scores, some teachers may tend to assume that innate factors are the only causes, when actually high test anxiety can be masking potential. In most schools, testing and guidance procedures seldom uncover this masking effect of anxiety.

There is evidence from this research that teachers are not accurate judges of the extent of children's anxiety. Even if the anxious child is identified, there remains the problem of what the teacher and school should do to lessen the anxiety and/or reduce its debilitating effects through teaching techniques. The authors suggest that with further progress in finding the answers to these problems, basic changes in teacher training programs may be required.

One wonders to what degree the highly anxious pupil performs more poorly on an I.Q. test because anxiety is masking the demonstration of what he knows, and to what degree he performs more poorly because, day in and day out, high anxiety has interfered with his learning. The authors do not distinguish clearly enough between anxiety's debilitating effects upon learning, and anxiety's debilitating effects upon the student's attempt

to demonstrate (through tests) what he has learned. Perhaps some information could be obtained on this point by comparing achievement test scores of a group of high anxiety pupils with a second batch of achievement test scores of the same group but with anxiety somewhat reduced through drugs.

Their almost exclusive reliance on psychoanalytic theory may have blinded the authors to the possibility that too low a degree of anxiety can be debilitating for learning and/or test performance. According to psychoanalytic theory, an increase in anxiety interferes with performance because it reduces the field of perception, dissipates energy by diverting the learner's attention from the task at hand, and impedes the learner's willingness to explore and take calculated risks. In other theories of human behavior, it is assumed that anxiety functions as a drive and will increase learning because of its motivating force. Back of this theoretical controversy is the fact that anxiety has varied meanings; it is considered by some as sufficiently specific to be labeled a variable, and by others as sufficiently abstract to be labeled a construct. The authors place anxiety at the construct level, and this reviewer would agree that this is the most meaningful use of the term. But in so doing, the authors have slighted the possibility that the anxiety construct has a motivational component. Considering the non-pupil-centered characteristics of many of the school tasks that students encounter, it would appear likely that extremely low anxiety would eliminate one factor teachers need for motivating their classes. It would also appear that as anxiety increases, the components of anxiety which create interference will become progressively operative and will at some point offset the advantages of the motivation component of anxiety. The resulting relationship between anxiety and learning (and test performance) might be expressed as a non-linear, U-shaped curve, with extremely low anxiety and high anxiety having a negative effect, and with moderate anxiety (the level that most researchers call low anxiety) having a positive effect.

The usefulness of psychoanalytic theory for suggesting hypotheses relating to school problems is amply demonstrated by this series of studies. This does not mean that the authors were successful in explaining all of their findings within the psychoanalytic framework; nor does it mean that other theoretical bases would fail to provide alternative explanations. But many research workers using psychoanalytic theory have been justifiably criticized for predominately restricting themselves to case study techniques, and for avoiding approaches which permitted quantification and replication. This project successfully meets this criticism.

The authors deserve an accolade for sophistication of overall project planning, selection of important hypotheses that refer to theory and that can be tested operationally through a diversity of designs, the care taken to build on the findings of other workers, willingness to doubt their own instruments, and the ingeniousness of their explanations of findings. There are too few long range research projects directly relevant to education that reach the stature of this one.

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*Family Worlds: A Psychosocial Approach to Family Life*, Robert Hess and Gerald Handel. University of Chicago Press, Chicago, 1959. 306 pp. \$5.00.

This book is a landmark in two senses: it is the best book that has been done on "the family," and it probably marks the end of studies of this kind. The bulk of the books that have been written on "the family" are by sociologists who, having collected the enormous number of statistical studies done by other sociologists on divorce rates, on factors affecting marital choice, on numbers of children per family, on mixed versus homologous marriages, etc., etc., put it all together by chapter headings, sub-headings and sub-sub-headings. Of course, one gets no picture from such collections of how any one family lives with itself. Another large collection of family studies treats only of the psychopathology of family life, and tends to do it in a rather fragmentary way. At any rate, whoever wants to know "what goes on" in an ordinary American family cannot find out anything about it from the scientific studies now among us. Contemporary "trade" books tend to be imitative of *The Lonely Crowd*.

What Hess and Handel have set themselves to do is to describe some everyday American families, asking themselves the question, "What is the total web of relationships among all the family members?" To this end they interviewed and administered a series of instruments to 33 families of "northwest European ancestry." This book discusses five of them at length, and analyzes the data in terms of some simple, general frames of reference that make sense:

Several types of data were obtained from each family member: an interview, obtained sometimes in one session, but often in two and occasionally in three; a TAT; a Sentence Completion; a brief essay from each child on 'The Person I Would Like To Be Like' and an essay from each parent on 'The Kind of Person I Would Like My Child To Be.'

Interview topics were the following: (1) Each member's view of the family. (2) The family's daily life. (3) The roles of each member. (4) The course of the family's development. (5) The socialization of the children. (6) How family members perceive and feel about each other. (7) Intra-familial problems of each member.

Messrs. Hess and Handel then took these varied materials and wove them together with great skill and insight, and with a graciousness of literary competence unheard of in this field. The result of their work is a book that probably sets the limit for this kind of research, for *in terms of this kind of data I do not believe there is any place left for research to go*.

This brings me to my second point—that this book probably marks the end of studies of this kind; for it represents probably the most that skill and theory can do with data that is based not on what is seen of family life, in the anthropological sense of *direct vision*, but rather on people's opinions of their family and their projections of it through the use of instruments. Succinctly: there is no validation by direct observation of family interaction of the material obtained with instruments.

Possibly we are now at the end of the dawn of social science and are moving into the day. At perception's dawn people believe what others say; and they believe, if they are social scientists, that *their* instruments reveal

inner truth just as the anatomist's scalpel uncovers the realities of the body. When, however, they move from this primordial dawn, as the spirits that carved the early Doric figures moved from their shepherd's morn into the brilliance of the Athenian noon, they learn that people often do not tell the truth—many times because they do not know it—and that a projection can mean almost anything depending on the point of view of the observer. Thus contemporary research on "the family" relies on direct observation of the human animal functioning in its native habitat, whether it be the South Seas or the Southside. And the instruments of choice are the naked eye, the sensitive ear, and then the camera and the tape-recorder. Let us see what *they* can do!

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*Issues in University Education: Essays by Ten American Scholars*, edited by Charles Frankel. Harper & Brothers, New York, 1959. 175 pp. \$3.95.

With Fulbright students and many others coming for study from abroad, it is desirable that they get a bird's eye view of the vast, multiform phenomenon of American higher education. This book is an effort to provide, not just a bird's eye view, but the views of a whole flock of birds, each reporting from his particular treetop or point in the sky.

This variety of presentation not only deals with the different phases of the highly complex field, but provides opportunity for expression of a variety of personal moods, attitudes and philosophies. A reader of the book will not be inclined to assume that he now understands American higher education; rather he will realize that he has come upon a vast interacting network of greatly varying institutions which in one way or another are trying to provide enlightenment, stimulation and guidance in nearly every phase of our society.

With the possible exception of one chapter, there is no essay at original or creative thinking. The mature American university professor will not find much in the book which he has not heard talked about at the University Club, or read in his professional journals. What the reader will get from the book is somewhat such as he would hope to get concerning the universities of India or Russia if he were to go there for the first time: how our universities came to be as they are, how they relate to the life of the past, to the country at present, and to the world.

The one exception to this character of writing is the chapter by J. Robert Oppenheimer entitled, "Science and the Human Community." That may be the title assigned to him, but he did not confine himself to it. While most of the contributors deal with the university as it has been in the past, or as it relates to present-day issues, Dr. Oppenheimer is thinking about what its place and problems will be in the fantastically different world into which we are being plunged with the velocity of a satellite. A few brief quotes will suggest his attitude:

In the eighteenth century . . . A time might not be far off, it was suggested, when the sum of human knowledge would double every half century. It is arguable whether the doubling time of knowledge today is eight years or eleven years; but it is something like that (p. 52).

We may be confident that there will be a total lack of gap between the biological and psychological descriptions of man. . . . I do not think that in the world fifty years from now there will be a subject called *psychology*, any more than there is now a subject called *natural philosophy*. I think that different ways of studying man will lead to disciplines which for convenience will have different names, be in different buildings, and will have different professors. . . . I do have the impression that all the way from history to biology a great arc of science is about to catch fire (pp. 53-55).

England has done best in putting special knowledge into the common pool of knowledge of educated men. . . . And this is almost not done at all in the United States. As a result, there is a deep attrition of the common culture (p. 57).

Even so alert a thinker as Dr. Oppenheimer displays the common trait of judging what could be by what has been. Writing of American efforts to put "special knowledge into the common pool" by means of "general education," he says:

These expeditions do not enrich the common culture because almost no solid report comes back from them. The transmittal back is entrusted too much to woefully superficial and often meretricious popularizations, which do not get the meaning, or the beauty, or the weight of an experience communicated, . . . essentially a journalistic description (pp. 57 and 61).

As an indication of one of the limitations of the book, while there are both favorable and unfavorable references to the fundamentally important issue of general education, nowhere is there a penetrating discussion of the subject. In the whole field of higher education there are few problems more needing competent and sustained attention than does the thoroughgoing and well-proportioned selection and revision of subject matter for use in the general education phases of higher education. Such adequate revision has been well made in sufficient areas to demonstrate that it is possible, but too often the efforts have justified the judgment of "superficial and often meretricious popularizations." It will be tragic if such great and important possibility is discredited by superficial execution.

Perhaps from the very nature of the undertaking, the several chapters do not cover the field in good proportion. Some fields are dealt with two or three times, while others are omitted. In some cases personal bent of interest dominates. For instance, the chapter on "The Democratization of Educational Opportunity" deals chiefly with desegregation in higher education. The land grant college development and the vast expansion of higher education opportunity which it brought about are not even mentioned in that discussion.

One relatively new factor is fortunately brought into perspective. The enormous extension of Fulbright and other scholar migrations is making higher education an interacting, world-wide process as it never was before in human history. Herein lies a major opportunity and responsibility for America and for its system of higher education.

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*Education and Public Understanding*, Gordon McCloskey. Harper and Brothers, New York, 1960. 565 pages. \$6.00.

Popular interest in the improvement of American education has been so well demonstrated in the last half decade, especially since Sputnik, that the appearance of a book entitled "Education and Public Understanding" awakens immediate response.

The necessity for better school instruction, enlarged curricula and facilities, and greater numbers of better trained teachers is fully realized by enlightened community leaders. All over the land school boards are debating the size of tax funds required for strengthening school systems and priorities for steps in this direction. And such improvements, it is recognized, cannot be achieved without successful information campaigns and the moulding of opinion among that amorphous group called "the public." Thus how to go about creating understanding is a timely and important problem.

Blurbed as a book for "school administrators, teachers, board members and enlightened citizens who must cope with the timeless problem of obtaining moral and financial support for schools," Gordon McCloskey's fat volume looks, unread, like the answer to a long-felt need for guidance in winning public acceptance and support. Indeed, the book does answer most of the "how to" questions and answers them with faithful adherence to the standard procedures of the public relations fraternity.

But it is extremely unlikely that the book will be read by at least half of the readers for whom it is intended; the dichotomy of the potential audience presents an impossible obstacle. One suspects Mr. McCloskey really did not have in mind an audience beyond the educational world, for the book is patently a text to be used in education courses. It is structured for the fifteen weekly lectures of a two-point semester course, with elaborate outlines of further study assignments appended to each chapter. Moreover, it is so pedantically written that it cannot possibly attract a lay audience.

Overly verbose, sprinkled with truisms and peppered with yawn-producing repetitions, the book would be very hard sledding for those lay boards and enlightened citizens. True, about half way through it begins to get down to practical plans for long-range programs and campaigns. But it is doubtful if even the most earnest and conscientious layman would get that far or, if he did, would find sufficient nuggets of knowledge to sustain so great an effort.

The essential material for a public relations program to create better understanding of schools is thoroughly presented. In fact, the book is a compendium of data about the special publics to whom messages must be delivered, about the role of opinion makers in a community, how to phrase messages for impact, organizing for an information campaign, the strategy of attracting attention and inducing comprehension. But Mr. McCloskey, a teacher of educational public relations at the State College of Washington, reveals himself by his style as more educationist than P. R. practitioner. One quick example: Chapter Five is called "Principles of Message Construction," a pedagogic way of saying "How To Tell Your Story."

It seems strange to us that Mr. McCloskey feels required to provide so many obvious expositions for the educational half of the potential audience. Truisms abound on almost every page. "Education is important to

individuals and nations," he writes on page one. And, later, "Even the simplest one-way type of communication always involves at least a source transmitting a message to a destination." (There is even a chart to illustrate this "startling" revelation.) Or: "By means of exchanging information, ideas or viewpoints people can develop common understanding and mutually agreeable working arrangements." Surely these would seem platitudinous even to students in schools of education? They certainly seem superfluous to a public relations practitioner.

But there *are* revelations of value to one whose discipline (if it may be so designated) is public relations. It is enlightening to realize that a sales pitch is necessary to convince some members of the school community that communicating with the public is an essential first step in any campaign to create understanding and support for schools. Mr. McCloskey addresses himself to this proposition with vigor. School people, he says, sometimes consider the communications job burdensome and even undignified, an attitude the author condemns as unsound.

Illuminating, too, is the recommendation that the person given the responsibility for communicating with the public be called "Assistant Superintendent" rather than "Public Relations Director." Even "Communications Director" is better than that—for adverse public reaction may be expected to use of the more familiar title. "Unfortunately some industrial and commercial 'public relations' workers have indulged in unscrupulous practices which have given that term a questionable meaning in some circles," he explains. "Recent years have seen a growing number of books and magazine articles attacking concepts that term connotes. Those attacks are not wholly justified, but they represent part of the context in which people will respond to educational communication and to the title of the person directing it."

One cannot quarrel with this conclusion. For similar reasons many voluntary health and welfare organizations call their P. R. Directors "Directors of Public Education." It avoids an unjust "Hidden Persuader" connotation.

There is, indeed, little to quarrel with in the content of the book as a whole. Mr. McCloskey knows what he is about. He recognizes the danger of runaway school-public communication in which educators may become special pleaders seeking to promote their own interests. He realizes that school communicators must artfully protect the public from thinking it knows more than it does about education. "Laymen, busy with other affairs, cannot be expected to comprehend all the complicated facts and ideas involved." He suggests that some educators may prove to be untalented communicators, strongly urges avoidance of displays of erudition that obscure meaning and alienate many members of an audience. "Simplification is dangerous but so is incomprehensibility." He recommends brevity, short sentences, the use of apt slogans and cue words. Above all, he pleads for use of ideas and words that relate directly to children, the end-product of education. This is wise, since human beings, by and large, are people-oriented rather than principle-oriented.

The book contains an admirable list of educational topics about which citizens should be informed before they can properly make decisions as to budgets and building expansion. Among these topics are: objectives of

education beyond the Three R's; services to all pupils, both academic and vocational; the value of well-trained teachers at all educational levels; the function of guidance counselling; homework as an influence on public opinion. For unless all these things (and many more) are interpreted to the people of a given community, they never can make adequate plans for strengthening their schools.

There are also brief and convincing sections on the public relations role of telephone-answering, letter-writing (with sample letters of both the right and wrong approaches), adult participation in school events, tie-ins with community organizations, the usefulness and dangers of public opinion polls, how to handle rumors, and a host of other bona-fide methods of developing two-way communication which is the essence of modern public relations practice.

There is not the shadow of a doubt that teachers, principals, superintendents, and students in the various stages of their careers will find this book useful, if carefully studied. Perhaps, for them, the language will not seem so turgid, the repetitions so boring. Other textbooks in both education and the social sciences that have come to our attention persistently employ pedantic lingo and excessive verbiage. This makes them anathema, as a rule, to those outside the educational paddock, but within the field they perhaps serve their expressed purposes. One can't help feeling it a pity that the content of this particular book could not have been translated more effectively for acceptance by the non-school community, whose leadership is so vitally required to achieve public understanding of educational needs and programs.

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*The Informed Heart*, Bruno Bettelheim. Free Press, Glencoe, Illinois, 1960.  
309 pp. \$5.00.

This volume is a great human document written by a man who survived a Nazi concentration camp and lived to recount and interpret what he observed and personally experienced and to use his hard-won knowledge to help children. For educators it has a special significance in offering an evaluation of human potentialities, of human plasticity and rigidity, especially under stress.

In the first chapter the author recounts his earlier belief that by changing society one could produce good men. This was followed by a subsequent conviction, after a personal analysis, that one must change man in order to attain a good society. His experiences and observations of human conduct in a concentration camp made him question this second belief that only changes in man could create a good society. He saw "that the environment could, as it were, turn personality upside down, not just in the small child but in the mature adult, too." To escape or resist such a disaster "psycho-analysis, as I understood it, was of no help in this all important decision" (p. 15). "While psychoanalysis lost nothing so far as it went, it went unexpectedly and in terms of my expectations, shockingly short of the mark" (p. 17).

From these experiences and his reflections the author offers some very important conclusions: "It is simple to state and accept that only id, ego and superego in their entirety form man; that only conscious thoughts and overt behavior in their totality are man. But the issue is not whether or which of these aspects exist, but which of these needs to be most considered and in what combinations in order to live the good life, to create the good society; in order to adapt the environment, the educational procedures, so that justice is done to a correct balance" (p. 18). He then reports the lessons which he learned from his experience in the concentration camps:

Firstly, psychoanalysis is by no means the most effective way to change personality. Being placed in a particular type of environment can produce much more radical changes, and in a much shorter time. [He later cites contemporary China as an example.]

Secondly, the then existing psychoanalytic theory was inadequate to *explain* fully what happened to the prisoners; it gave little guidance for understanding what makes for "good" life, the "good" man. Applied within the appropriate frame of reference it clarified much. Outside of its particular frame of reference, or applied to phenomena outside its province, it distorted the meanings instead of clarifying them.

While it told much about the "hidden" in man, it told much less about the "true" man. To use one example, it became obvious that the ego was by no means just a weak servant of the id and superego. Some men revealed astonishing ego strength that seemed derived from neither id or superego (p. 18).

Again he remarks, "The practice of psychoanalytic therapy, as conceived by Freud and practiced by his followers, is basically no more than a powerful conditioning social situation; as such it can elucidate only some and not all aspects of the human mind, can modify some but not all aspects of personality, and cannot fail to impose limitations both on patients, practitioners and theory" (p. 22).

Without any deliberate intention by psychoanalysts, and often contrary to their stated beliefs, the emphasis of nearly all investigations is on what went wrong in people's lives, and what can be done to correct the mishaps. Since psychoanalysts deal with these problems mainly or only, this is entirely legitimate. But it does not then offer a theory of personality giving positive guidance toward a good life. At the same time it is more and more being pressed into service as a guide to life, both directly and indirectly, since it now provides theoretical structure for many of the behavior sciences.

Psychoanalysts would be among the first to say that the import of their theories and practice now goes well beyond the narrow field of psychotherapy; they are well aware of its importance in sociology, education, aesthetics, life. But when psychoanalysis is thus applied outside the limits of psychotherapy, then serious hazards may appear if its original point of departure, and its continual emphasis on the morbid, and the pathological, are not tempered by equally careful attention to the healthy, the normal, the positive. Through such concentration on the bad and its correction, one could easily arrive at a theory according to which

overcoming the morbid, rather than its absence, becomes the norm of a healthy personality.

In this neglect of the positive lies still another danger. We could come to believe that for all men, as for patients in psychotherapy, the goal of self-realization of individuation, is achieved by ridding man of what ails him, or failing that by compensating for gross pathology through great intellectual or artistic achievement like Beethoven. While lasting works of art may thus be created, those persons closest to the artist may be destroyed in the process (p. 25).

It is a philosophy, which by being fascinated with pathology, ends up (without really wishing to) by neglecting life (p. 26).

The author finds that "love is not enough; that the good life can be achieved through individuals and society only, if in addition to 'love', it also is based on the constructive, healing personality building (not just ego building) propensities of work" (p. 31).

He adds, "What psychoanalysis has already achieved in personality within a stable social context, must now be done for personality and social context in their interaction, when both of them are changing" (p. 37).

The author clearly states his "conviction that neither is society as irrelevant for understanding personality dynamics as psychoanalysts suggested, nor is personality development as rooted in biology and early life experience, or as independent of the current environment, as was assumed" (p. 37).

If on the other hand, society can have such far-reaching influence on personality (as shown by concentration camps experience) then its influence must be better understood, more important, man must be better protected through education, or otherwise, against its potentially destructive influence. He must be better equipped to change society so that it will not be an obstacle for living a good life, but a setting that facilitates and encourages it. In short, man must do both: live the good life in society and create anew in each generation the good society for himself and all others (p. 37).

Bettelheim's considered judgment on these questions comes therefore as a recognition of the great value of psychoanalytic therapy for the disturbed individual and of its limitations for the task of education which, unlike psychotherapy of individual patients, must provide an environmental social context for evoking the strength and potentialities of children and youth and their capacity to remake their society.

Therefore Bettelheim poses for education "the practical question: What changes in the environment are needed to bring up children so that their chance to live a good life is greater; and what methods of bringing up children are necessary to help them live a good life whatever their environment may be" (p. 41).

In these quoted statements Bettelheim is stating not only the fruits of his own bitter experience and mature reflections, but formulating some of the major tasks of education today. To perform these tasks, education needs both constructive and penetrating insights into the personality and the potentialities of human nature, plus the imagination to help create a social environment in schools and colleges that will foster the good man who can and will establish the good society. Only in this way, apparently, can edu-

cation escape from its traditional preoccupation with the purely intellectual and academic and accept its larger responsibilities for cultural renewal and social reorientation.

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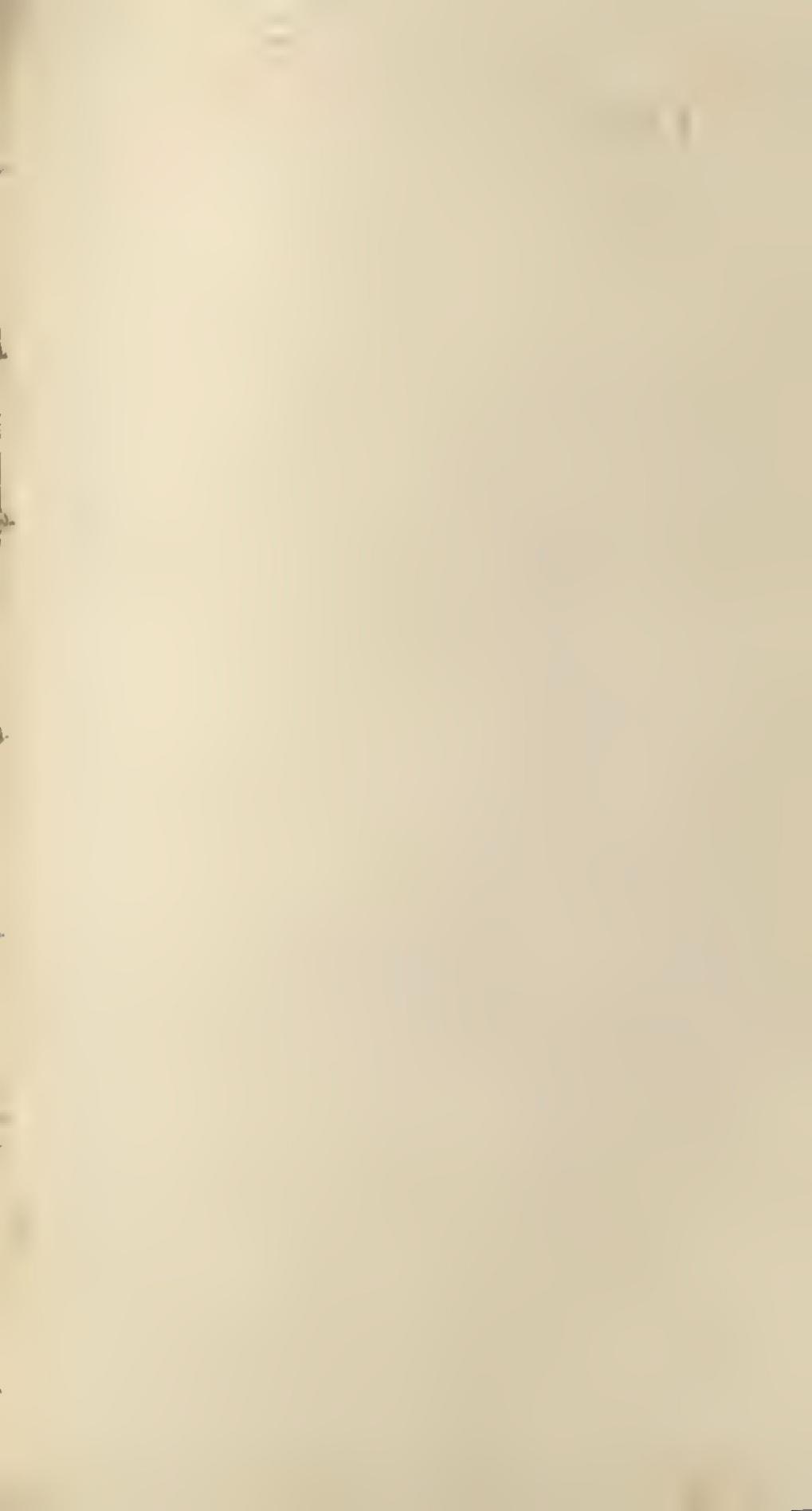
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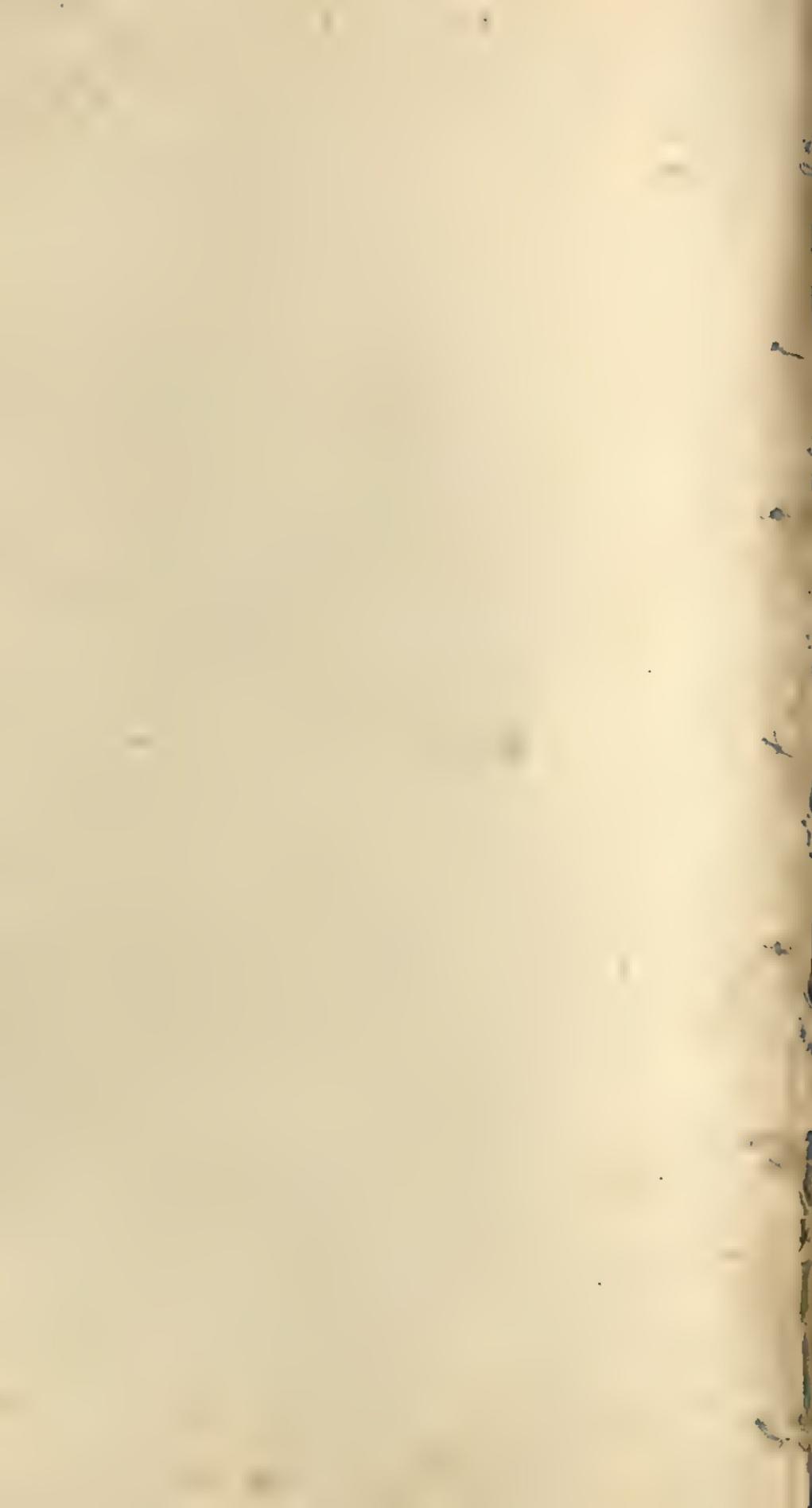
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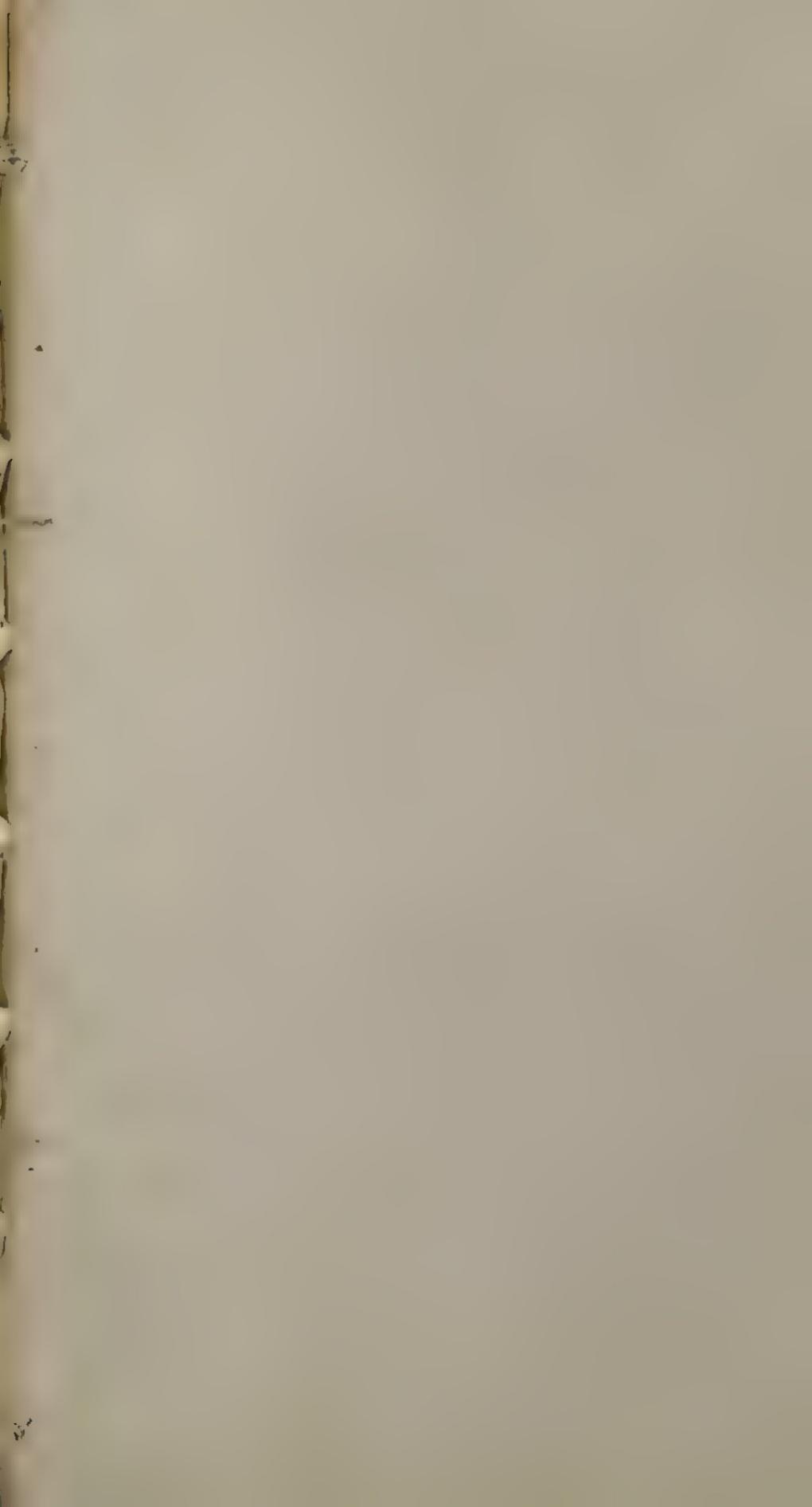
## Notes from Readers

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*THE EDITORS*







19 DEC '261

# HARVARD EDUCATIONAL REVIEW



*Why We Need Teaching Machines*

B. F. SKINNER

*Towards a Catholic Concept of Education in a Democracy*

AELRED GRAHAM

*Public Education and The Good Life*

WILLIAM K. FRANKENA

*Education, Knowledge, and the Problem of Existence*

GEORGE F. KNELLER

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VOLUME THIRTY-ONE

FALL

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## Information for Contributors

The *Harvard Educational Review* is a professional quarterly for the publication of articles dealing with concerns of education. These concerns are not merely the problems of schools; they are also those of the society which brings schools into existence. The *Review* therefore welcomes contributions, not only by scholars and research workers in education, but also by persons who are working in related disciplines and professions.

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# Why We Need Teaching Machines

*In 1954, B. F. Skinner published his first discussion of teaching machines utilizing the results of experimental investigations on the effects of reinforcement in learning.\* Since that time many educators and psychologists have become interested in the technical and ethical issues involved in programmed instruction.*

*In this article, Professor Skinner discusses specific types of teaching machines and the particular types of "learning" possible through the use of these machines.*

*B. F. Skinner became Edgar Pierce Professor of Psychology at Harvard University in 1958. He received his A.B. degree from Hamilton College and his A.M. and Ph.D. degrees from Harvard University. He was a member of the faculty of Psychology at the University of Minnesota until 1948 when he joined the Department of Psychology at Harvard University. His publications include the following: Behavior of Organisms (1938), Science and Human Behavior (1953), Verbal Behavior (1957), Schedules of Reinforcement (with C. B. Ferster) (1957), and Cumulative Record (1959). This article is printed here with the permission of Appleton-Century-Crofts, Inc. It is a chapter of the revised and enlarged edition of Cumulative Record, 1961.†*

**B. F. SKINNER**  
*Harvard University*

CURRENT suggestions for improving education are familiar to everyone. We need more and better schools and colleges. We must pay salaries which will

\* The Science of Learning and the Art of Teaching," *Harvard Educational Review*, XXIV, 86-97.

† Due to a misunderstanding regarding publication dates, the *Harvard Educational Review* is printing this article, "Why We Need Teaching Machines," after its appearance in *Cumulative Record*. However, the general position of the Editorial Board not to post-publish remains unchanged.

attract and hold good teachers. We should group students according to ability. We must bring textbooks and other materials up to date, particularly in science and mathematics. And so on. It is significant that all this can be done without knowing much about teaching or learning. Those who are most actively concerned with improving education seldom discuss what is happening when a student reads a book, writes a paper, listens to a lecture, or solves a problem, and their proposals are only indirectly designed to make these activities more productive. In short, there is a general neglect of education method. (Television is no exception, for it is only a way of amplifying and extending *old* methods, together with their shortcomings.)

It is true that the psychology of learning has so far not been very helpful in education. Its learning curves and its theories of learning have not yielded greatly improved classroom practices. But it is too early to conclude that nothing useful is to be learned about the behavior of teacher and student. No enterprise can improve itself very effectively without examining its basic processes. Fortunately, recent advances in the experimental analysis of behavior suggest that a true technology of education is feasible. Improved techniques are available to carry out the two basic assignments of education: constructing extensive repertoires of verbal and nonverbal behavior and generating that high probability of action which is said to show interest, enthusiasm, or a strong "desire to learn."

The processes clarified by an experimental analysis of behavior have, of course, always played a part in education, but they have been used with little understanding of their effects, wanted or unwanted. Whether by intention or necessity, teachers have been less given to teaching than to holding students responsible for learning. Methods are still basically aversive. The student looks, listens, and answers questions (and, incidentally, sometimes learns) as a gesture of avoidance or escape. A good teacher can cite exceptions, but it is a mistake to call them typical. The birch rod and cane are gone, but their place has been taken by equally effective punishments (criticism, possibly ridicule, failure) used in the same way: the student must learn, or else!

By-products of aversive control in education range from truancy, early drop-outs, and school-vandalism to inattention, "mental fatigue," forgetting, and apathy. It does not take a scientific analysis to trace these to their sources in educational practice. But more acceptable techniques have been hard to find. Erasmus tells of an English gentleman who tried to teach his son Greek and Latin without punishment. He taught the boy to use a bow and arrow and set up targets in the shape of Greek and Latin letters, rewarding each hit with a cherry. He also fed the boy letters cut from delicious biscuits. As a result, we may assume that the boy salivated slightly upon seeing a Greek or

Latin text and that he was probably a better archer; but any effect on his knowledge of Greek and Latin is doubtful.

Current efforts to use rewards in education show the same indirection. Texts garnished with pictures in four colors, exciting episodes in a scientific film, interesting classroom activities—these will make a school interesting and even attractive (just as the boy probably liked his study of Greek and Latin), but to generate specific forms of behavior these things must be related to the student's behavior in special ways. Only then will they be truly rewarding or, technically speaking, "reinforcing."

We make a reinforcing event contingent on behavior when, for example, we design a piece of equipment in which a hungry rat or monkey or chimpanzee may press a lever and immediately obtain a bit of food. Such a piece of equipment gives us a powerful control over behavior. By scheduling reinforcements, we may maintain the behavior of pressing the lever in any given strength for long periods of time. By reinforcing special kinds of responses to the lever—for example, very light or very heavy presses or those made with one hand or the other—we "shape" different forms or topographies of behavior. By reinforcing only when particular stimuli or classes of stimuli are present, we bring the behavior under the control of the environment. All these processes have been thoroughly investigated, and they have already yielded standard laboratory practices in manipulating complex forms of behavior for experimental purposes. They are obviously appropriate to educational design.

In approaching the problem of the educator we may begin by surveying available reinforcers. What positive reasons can we give the student for studying? We can point to the ultimate advantages of an education—to the ways of life which are open only to educated men—and the student himself may cite these to explain why he wants an education, but ultimate advantages are not contingent on behavior in ways which generate action. Many a student can testify to the result. No matter how much he may *want* to become a doctor or an engineer, say, he cannot force himself to read and remember the page of text in front of him at the moment. All notions of ultimate utility (as, for example, in economics) suffer from the same shortcoming: they do not specify effective contingencies of reinforcement.

The gap between behavior and a distant consequence is sometimes bridged by a series of "conditioned reinforcers." In the laboratory experiment just described a delay of even a fraction of a second between the response to the lever and the appearance of food may reduce the effectiveness of the food by a measurable amount. It is standard practice to let the movement of a lever produce some visual stimulus, such as a change in the illumination in the apparatus, which is then followed by food. In this way the change in illumination becomes a conditioned reinforcer which can be made immediately con-

tingent on the response. The marks, grades, and diplomas of education are conditioned reinforcers designed to bring ultimate consequences closer to the behavior reinforced. Like prizes and medals, they represent the approval of teachers, parents, and others, and they show competitive superiority, but they are mainly effective because they signalize progress through the system—toward some ultimate advantage of, or at least freedom from, education. To this extent they bridge the gap between behavior and its remote consequences; but they are still not contingent on behavior in a very effective way.

Progressive education tried to replace the birch rod, and at the same time avoid the artificiality of grades and prizes, by bringing the reinforcers of everyday life into the schools. Such natural contingencies have a kind of guaranteed effectiveness. But a school is only a small part of the student's world, and no matter how real it may seem, it cannot provide natural reinforcing consequences for all the kinds of behavior which education is to set up. The goals of progressive education were shifted to conform to this limitation, and many worthwhile assignments were simply abandoned.

Fortunately, we can solve the problem of education without discovering or inventing additional reinforcers. We merely need to make better use of those we have. Human behavior is distinguished by the fact that it is affected by small consequences. Describing something with the right word is often reinforcing. So is the clarification of a temporary puzzlement, or the solution of a complex problem, or simply the opportunity to move forward after completing one stage of an activity. We need not stop to explain *why* these things are reinforcing. It is enough that, when properly contingent upon behavior, they provide the control we need for successful educational design. Proper contingencies of reinforcement, however, are not always easily arranged. A modern laboratory for the study of behavior contains elaborate equipment designed to control the environment of individual organisms during many hours or days of continuous study. The required conditions and changes in conditions cannot be arranged by hand, not only because the experimenter does not have the time and energy, but because many contingencies are too subtle and precise to be arranged without instrumental help. The same problem arises in education.

Consider, for example, the temporal patterning of behavior called "rhythm." Behavior is often effective only if properly timed. Individual differences in timing, ranging from the most awkward to the most skillful performances, affect choice of career and of artistic interests and participation in sports and crafts. Presumably a "sense of rhythm" is worth teaching, yet practically nothing is now done to arrange the necessary contingencies of reinforcement. The skilled typist, tennis player, lathe operator, or musician is, of course, under the influence of reinforcing mechanisms which generate subtle timing, but many people never reach the point at which these natural contingencies can take over.

A relatively simple device supplies the necessary contingencies. The student taps a rhythmic pattern in unison with the device. "Unison" is specified very loosely at first (the student can be a little early or late at each tap) but the specifications are slowly sharpened. The process is repeated for various speeds and patterns. In another arrangement, the student echoes rhythmic patterns sounded by the machine, though not in unison, and again the specifications for an accurate reproduction are progressively sharpened. Rhythmic patterns can also be brought under the control of a printed score.

Another kind of teaching machine generates sensitivity to properties of the environment. We call an effective person "discriminating." He can tell the difference between the colors, shapes, and sizes of objects, he can identify three-dimensional forms seen from different aspects, he can find patterns concealed in other patterns, he can identify pitches, intervals, and musical themes and distinguish between different tempos and rhythms—and all of this in an almost infinite variety. Subtle discriminations of this sort are as important in science and industry and in everyday life as in identifying the school of a painter or the period of a composer.

The ability to make a given kind of discrimination can be taught. A pigeon, for example, can be *made* sensitive to the color, shape, and size of objects, to pitches, and rhythms, and so on—simply by reinforcing it when it responds in some arbitrary way to one set of stimuli and extinguishing responses to all others. The same kinds of contingencies of reinforcement are responsible for human discriminative behavior. *The remarkable fact is that they are quite rare in the environment of the average child.* True, children are encouraged to play with objects of different sizes, shapes, and colors, and are given a passing acquaintance with musical patterns; but they are seldom exposed to the precise contingencies needed to build subtle discriminations. It is not surprising that most of them move into adulthood with largely undeveloped "abilities."

The number of reinforcements required to build discriminative behavior in the population as a whole is far beyond the capacity of teachers. Too many teachers would be needed, and many contingencies are too subtle to be mediated by even the most skillful. *Yet relatively simple machines will suffice.* The apparatus shown in Figure 1 is adapted from research on lower organisms. It teaches an organism to discriminate selected properties of stimuli while "matching to sample." Pictures or words are projected on translucent windows which respond to a touch by closing circuits. A child can be made to "look at the sample" by reinforcing him for pressing the top window. An adequate reinforcement for this response is simply the appearance of material in the lower windows, from which a choice is to be made.

The child identifies the material which corresponds to the sample in some prescribed way by pressing one of the lower windows, and he is then reinforced again—possibly simply because a new set of materials now appears

*Will Rappoport*

Fig. 1. A machine to teach the matching of colors, shapes, sizes, as well as correspondences between pictures and words, words and other words, and so on.

on the windows. If he presses the wrong window, all three choices disappear until the top window has been pressed again—which means until he has again looked at the sample. Many other arrangements of responses and reinforcements are, of course, possible. In an auditory version, the child listens to a sample pattern of tones and then explores other samples to find a match.

If devices similar to these were generally available in our nursery schools and kindergartens, our children would be far more skillful in dealing with their environments. They would be more productive in their work, more sensitive to art and music, better at sports, and so on. They would lead more effective lives. We cannot assert all this with complete confidence on the present evidence, but there is no doubt whatsoever that *the conditions needed to produce such a state of affairs are now lacking*. In the light of what we know about differential contingencies of reinforcement, the world of the young child is shamefully impoverished. And only machines will remedy this, for the required frequency and subtlety of reinforcement cannot otherwise be arranged.

The teacher is, of course, at a disadvantage in teaching skilled and discriminative behavior because such instruction is largely nonverbal. It may be that the methods of the classroom, in which the teacher is said to "communicate" with the student, to "impart information," and to build "verbal abilities," are better adapted to standard subjects matters, the learning of which is usually regarded as more than the acquisition of forms of behavior or of environmental control. Yet a second look may be worthwhile. Traditional characterizations of verbal behavior raise almost insuperable problems for the teacher, and a more rigorous analysis suggests another possibility. We can define terms like "information," "knowledge," and "verbal ability" by reference to the behavior from which we infer their presence. *We may then teach the behavior directly*. Instead of "transmitting information to the student" we may simply set up the behavior which is taken as a sign that he possesses information. Instead of teaching a "knowledge of French" we may teach the behavior from which we infer such knowledge. Instead of teaching "an ability to read" we may set up the behavioral repertoire which distinguishes the child who knows how to read from one who does not.

To take the last example, a child reads or "shows that he knows how to read" by exhibiting a behavioral repertoire of great complexity. He finds a letter or word in a list on demand; he reads aloud; he finds or identifies objects described in a text; he rephrases sentences; he obeys written instructions; he behaves appropriately to described situations; he reacts emotionally to described events; and so on, in a long list. He does none of this before learning to read and all of it afterwards. To bring about such a change is an

extensive assignment, and it is tempting to try to circumvent it by teaching something called "an ability to read" from which all these specific behaviors will flow. But this has never actually been done. "Teaching reading" is always directed toward setting up specific items in such a repertoire.

It is true that parts of the repertoire are not independent. A student may acquire some kinds of responses more readily for having acquired others, and he may for a time use some in place of others (for example, he may follow written directions not by responding directly to a text but by following his own spoken instructions as he reads the text aloud). In the long run all parts of the repertoire tend to be filled in, not because the student is rounding out an ability to read, but simply because all parts are in their several ways useful. They all continue to be reinforced by the world at large after the explicit teaching of reading has ceased.

Viewed in this way, reading can also be most effectively taught with instrumental help. A pupil can learn to distinguish among letters and groups of letters in an alphabet simply as visual patterns in using the device and procedures just described. He can be taught to identify arbitrary correspondences (for example, between capitals and lower-case letters, or between handwritten and printed letters) in a more complex type of stimulus control which is within reach of the same device. With a phonographic attachment, correspondences between printed letters and sounds, between sounds and letters, between words and sounds, between sounds and printed words, and so on, can be set up. (The student could be taught all of this without pronouncing a word, and it is possible that he would learn good pronunciation more quickly if he had first done so.)

The same device can teach correspondences between words and the properties of objects. The pupil selects a printed or spoken word which corresponds in the language to, say, a pictured object or another printed or spoken word. These semantic correspondences differ in important respects from formal matches, but the same processes of programming and reinforcement can—indeed, must—be used. Traditional ways of teaching reading establish all these repertoires, but they do so indirectly and, alas, inefficiently. In "building a child's need to read," in motivating "his mental readiness," in "sharing information," and so on, the teacher arranges, sometimes almost surreptitiously, many of the contingencies just listed, and these are responsible for whatever is learned. An explicit treatment clarifies the program, suggests effective procedures, and guarantees a coverage which is often lacking with traditional methods. Much of what is called reading has not been covered, of course, but it may not need to be taught, for once these basic repertoires have been established, the child begins to receive automatic reinforcement in responding to textual material.

The same need for a behavioral definition arises in teaching other verbal

skills (for example, a second language) as well as the traditional subjects of education. In advancing to that level, however, we must transcend a limitation of the device in Figure 1. The student can *select* a response without being able to speak or write, but we want him to learn to *emit* the response, since this is the kind of behavior which he will later find most useful. The emission of verbal behavior is taught by another kind of machine. A frame of textual material appearing in the square opening is incomplete: in place of certain letters or figures there are holes. Letters or figures can be made to appear in these holes by moving sliders (a keyboard would be an obvious improvement). When the material has been completed, the student checks his response by turning a crank. The machine senses the settings of the sliders and, if they are correct, moves a new frame of material into place, the sliders returning to their home position. If the response is wrong, the sliders return home, and a second setting must be made.

The machine can tell the student he is wrong without telling him what is right. This is an advantage, but it is relatively costly. Moreover, correct behavior is rather rigidly specified. Such a machine is probably suitable only for the lower grades. A simpler and cheaper procedure, with greater flexibility, is to allow the student to compare his written response with a revealed text. The device shown in Figure 2 uses this principle. It is suitable for verbal instruction beyond the lower primary grades—that is, through junior high school, high school, and college, and in industrial and professional education. Programmed material is stored on fan-folded paper tapes. One frame of material, the size of which may be varied with the nature of the material, is exposed at a time. The student writes on a separate paper strip. He cannot look at unauthorized parts of the material without recording the fact that he has done so, because when the machine has been loaded and closed, it can be opened only by punching the strip of paper.

The student sees printed material in the large window at the left. This may be a sentence to be completed, a question to be answered, or a problem to be solved. He writes his response in an uncovered portion of a paper strip at the right. He then moves a slider which covers the response he has written with a transparent mask and uncovers additional material in the larger opening. This may tell him that his response is wrong without telling him what is right. For example, it may list a few of the commonest errors. If the response he wrote is among them, he can try again on a newly uncovered portion of the paper strip. A further operation of the machine covers his second attempt and uncovers the correct response. The student records a wrong response by punching a hole alongside it, leaving a record for the instructor who may wish to review a student's performance, and operating a counter which becomes visible at the end of the set. Then the student records the number of mistakes he has made and may compare it with a par score for the set.

*Will Rapport*

FIG. 2. A machine to teach "verbal knowledge."

Exploratory research in schools and colleges indicates that what is now taught by teacher, textbook, lecture, or film can be taught in half the time with half the effort by a machine of this general type.<sup>1</sup> One has only to see students at work to understand why this is a conservative estimate. The student remains active. If he stops, the program stops (in marked contrast with classroom practice and educational television); but there is no compulsion for he is not inclined to stop. Immediate and frequent reinforcement sustains a lively interest. (The interest, incidentally, outlasts any effect of novelty. Novelty may be relevant to interest, but the material in the machine is always novel.) Where current instructional procedures are highly efficient, the gain may not be so great. In one experiment<sup>2</sup> involving industrial education there was approximately a 25% saving in the time required for instruction, something of the order of a 10% increase in retention, and about 90% of the students preferred to study by machine. In general, the student generally likes what he is doing; he makes no effort to escape—for example, by letting his attention wander. He need not force himself to work and is usually free of the feeling of effort generated by aversive control. He has no reason to be anxious about impending examinations, for none are required. Both he and his instructor know where he stands at all times.

No less important in explaining the success of teaching machines is the fact that each student is free to proceed at his own rate. Holding students together for instructional purposes in a class is probably the greatest source of inefficiency in education. Some efforts to mechanize instruction have missed this point. A language laboratory controlled from a central console presupposes a group of students advancing at about the same rate, even though some choice of material is permitted. Television in education has made the same mistake on a colossal scale. A class of twenty or thirty students moving at the same pace is inefficient enough, but what must we say of all the students in half a dozen states marching in a similar lock step?

In trying to teach more than one student at once we harm both fast and slow learners. The plight of the good student has been recognized, but the slow learner suffers more disastrous consequences. The effect of pressure to move beyond one's natural speed is cumulative. The student who has not fully mastered a first lesson is less able to master a second. His ultimate failure may greatly exaggerate his shortcoming; a small difference in speed has grown to an immense difference in comprehension. Some of those most

<sup>1</sup> Under the direction of Allen Calvin of Hollands College, an 8th grade class in the Roanoke School System completed all the work of a 9th grade class in algebra in one term. Test scores were comparable with a normal 9th grade performance, and a test nine months later showed a retention of at least 90% of the material learned.

<sup>2</sup> More recent results with the same material improved in the light of the earlier experiment were reported by J. L. Hughes and W. J. McNamara at the Annual Meeting of the American Psychological Association in New York, September, 1961. Their work concerned the use of programmed texts in industrial education.

active in improving education have been tempted to dismiss slow students impatiently as a waste of time, but it is quite possible that many of them are capable of substantial, even extraordinary, achievements if permitted to move at their own pace. Many distinguished scientists, for example, have appeared to think slowly.

One advantage of individual instruction is that the student is able to follow a program without breaks or omissions. A member of a class moving at approximately the same rate cannot always make up for absences, and limitations of contact time between student and teacher make it necessary to abbreviate material to the point at which substantial gaps are inevitable. Working on a machine, the student can always take up where he left off or, if he wishes, review earlier work after a longer absence. The coherence of the program helps to maximize the student's success, for by thoroughly mastering one step he is optimally prepared for the next. Many years ago, in their *Elementary Principles of Education*<sup>3</sup>, Thorndike and Gates considered the possibility of a book "so arranged that only to him who had done what was directed on page one would page two become visible, and so on." With such a book, they felt, "much that now requires personal instruction could be managed by print." The teaching machine is, of course, such a book.

In summary, then, machine teaching is unusually efficient because (1) the student is frequently and immediately reinforced, (2) he is free to move at his natural rate, and (3) he follows a coherent sequence. These are the more obvious advantages, and they may well explain current successes. But there are more promising possibilities: the conditions arranged by a good teaching machine make it possible to apply to education what we have learned from laboratory research and to extend our knowledge through rigorous experiments in schools and colleges.

The conceptions of the learning process which underlie classroom practices have long been out of date. For example, teachers and textbooks are said to "impart information." They expose the student to verbal and nonverbal material and call attention to particular features of it, and in so doing they are said to "tell the student something." In spite of discouraging evidence to the contrary, it is still supposed that if you tell a student something, he then knows it. In this scheme, teaching is the transmission of information, a notion which, through a false analogy, has acquired undue prestige from communication engineering. Something is undoubtedly transmitted by teacher to student, for if communication is interrupted, instruction ceases; but the teacher is not merely a source from which knowledge flows into the student. We cannot necessarily improve instruction by altering the conditions of transmission—as, for example, by changing to a different sensory modality. This is a mistake made by some so-called teaching machines which, accepting

<sup>3</sup> Thorndike, Edward & Gates, Arthur. *Elementary Principles of Education*. (New York: B. Macmillan Co., 1929).

our failure to teach reading, have tried to restore communication by using recorded speech. The student no longer pores over a book, as in the traditional portrait; he stares into space with earphones on his head. For the same reasons improvements in the coding of information may not be immediately relevant.

The student is more than a receiver of information. He must take some kind of action. The traditional view is that he must "associate." The stream of information flowing from teacher to student contains pairs of items which, being close together or otherwise related, become connected in the student's mind. This is the old doctrine of the association of ideas, now strengthened by a scientific, if uncritical, appeal to conditioned reflexes: two things occurring together in experience somehow become connected so that one of them later reminds the student of the other. The teacher has little control over the process except to make sure that things occur together often and that the student pays attention to them—for example, by making the experiences vivid or, as we say, memorable. Some devices called teaching machines are simply ways of presenting things together in ways which attract attention. The student listens to recorded speech, for example, while looking at pictures. The theory is that he will associate these auditory and visual presentations.

But the action demanded of the student is not some sort of mental association of contiguous experiences. It is more objective and, fortunately, more controllable than that. To acquire behavior, *the student must engage in behavior*. This has long been known. The principle is implied in any philosophy of "learning by doing." But it is not enough simply to acknowledge its validity. Teaching machines provide the conditions needed to apply the principle effectively.

Only in the early stages of education are we mainly interested in establishing *forms* of behavior. In the verbal field, for example, we teach a child to speak, eventually with acceptable accent and pronunciation, and later to write and spell. After that, topography of behavior is assumed; the student can speak and write and must now learn to do so appropriately—that is, he must speak or write in given ways under given circumstances. How he comes to do so is widely misunderstood. Education usually begins by establishing so-called formal repertoires. The young child is taught to "echo" verbal behavior in the sense of repeating verbal stimuli with reasonable accuracy. A little later he is taught to read—to emit verbal behavior under the control of textual stimuli. These and other formal repertoires are used in later stages of instruction to evoke new responses without "shaping" them.

In an important case of what we call instruction, control is simply transferred from so-called formal to thematic stimuli. When a student learns to memorize a poem, for example, it is clearly inadequate to say that by reading the poem he presents to himself its various parts contiguously and then

associates them. He does not simply read the poem again and again until he knows it. (It is possible that he could never learn the poem in that way.) Something else must be done, as anyone knows who has memorized a poem from the text. The student must make tentative responses while looking away from the text. He must glance at the text from time to time to provide fragmentary help in emitting a partially learned response. If a recalled passage makes sense, it may provide its own automatic confirmation, but if the passage is fragmentary or obscure, the student must confirm the correctness of an emitted response by referring to the text after he has emitted it.

A teaching machine facilitates this process. It presents the poem line by line and asks the student to read it. The text is then "vanished"—that is, it becomes less and less clear or less and less complete in subsequent presentations. Other stimuli (arising from the student's own behavior in this case) take over. In one procedure a few unimportant letters are omitted in the first presentation. The student reads the line without their help and indicates his success by writing down the omitted letters, which are confirmed by the machine. More of the line is missing when it again appears, but because he has recently responded to a fuller text, the student can nevertheless read it correctly. Eventually, no textual stimulus remains, and he can "recite" the poem.

(If the reader wishes to try this method on a friend or member of his family without a machine, he may do so by writing the poem on a chalk board in a clear hand, omitting a few unimportant letters. He should ask his subject to read the poem aloud but to make no effort to memorize it. He should then erase another selection of letters. He will have to guess at how far he can go without interfering with his subject's success on the next reading, but under controlled conditions this could be determined for the average student quite accurately. Again the subject reads the poem aloud, making no effort to memorize, though he may have to make some effort to recall. Other letters are then erased and the process repeated. For a dozen lines of average material, four or five readings should suffice to eliminate the text altogether. The poem can still be "read.")

Memorized verbal behavior is a valuable form of knowledge which has played an important role in classical education. There are other, and generally more useful, forms in which the same processes are involved. Consider, for example, a labeled picture. To say that such an instructional device "tells the student the name of the pictured object" is highly elliptical—and dangerous if we are trying to understand the processes involved. Simply showing a student a labeled picture is no more effective than letting him read a poem. He must take some sort of action. As a formal stimulus, the label evokes a verbal response, not in this case in the presence of other verbal behavior on the part of the student, but in the presence of the picture. The

control of the response is to pass from the label to the picture; the student is to give the name of the pictured object without reading it.

The steps taken in teaching with labeled pictures can also be arranged particularly well with a machine. Suppose we are teaching medical-school anatomy at the textbook level. Certain labeled charts represent what is to be learned in the sense that the student will eventually (1) give the names of indicated parts and describe relations among them and (2) be able to point to, draw, or construct models of parts, or relations among them, given their names. To teach the first of these, we induce the student to describe relations among the parts shown on a fully labeled chart. One effect of this is that he executes the verbal behavior at issue—he writes the names of the parts. More important, he does this while, or just after, looking at corresponding pictured details. He will be able to write the names again while looking at a chart which shows only incomplete names, possibly only initial letters. Finally, he will be able to supply the complete names of parts identified only by number on still another chart. His verbal responses have passed from the control of textual stimuli to that of pictured anatomical details. Eventually, as he studies a cadaver, the control will pass to the actual anatomy of the human body. In this sense he then "knows the names of the parts of the body and can describe relations among them."

(The device shown in Figure 2 is designed to skip one or two steps in "vanishing" textual stimuli. A fully labeled chart may be followed by a merely numbered one. The student writes the name corresponding to a number in the first space. If he cannot do this, he operates the machine to uncover, not merely some indication that he is right or wrong, but additional help—say, a few letters of the correct response.)

Learning a poem or the names of pictured objects is a relatively straightforward task. More complex forms of knowledge require other procedures. At an early point, the main problem becomes that of analyzing knowledge. Traditionally, for example, something called a "knowledge of French" is said to permit the student who possesses it to do many things. One who possesses it can (1) repeat a French phrase with a good accent, (2) read a French text in all the senses of reading listed above, (3) take dictation in French, (4) find a word spoken in French on a printed list, (5) obey instructions spoken in French, (6) comment in French upon objects or events, (7) give orders in French, and so on. If he also "knows English," he can give the English equivalents of French words or phrases or the French equivalents of English words or phrases.

The concept of "a knowledge of French" offers very little help to the would-be teacher. As in the case of reading, we must turn to the behavioral repertoires themselves, for these are all that have ever been taught when education has been effective. The definition of a subject matter in such terms

may be extraordinarily difficult. Students who are "competent in first-year college physics," for example, obviously differ from those who are not—but in what way? Even a tentative answer to that question should clarify the problem of teaching physics. It may well do more. In the not-too-distant future much more general issues in epistemology may be approached from the same direction. It is possible that we shall fully understand the nature of knowledge only after having solved the practical problems of imparting it.

Until we can define subject matters more accurately and until we have improved our techniques of building verbal repertoires, writing programs for teaching machines will remain something of an art. This is not wholly satisfactory, but there is some consolation in the fact that an impeccable authority on the excellence of a program is available. The student himself can tell the programmer where he has failed. By analyzing the errors made by even a small number of students in a pilot study, it is usually possible to work a great improvement in an early version of a program. (The machine shown in Figure 2 is designed to supply the necessary feedback to the programmer in a convenient form. When a student punches an error, he marks the back of the printed material, which eventually carries an item-by-item record of the success or failure of the programmer. This is obviously valuable during the experimental stages of programming, but it will also be desirable when machines are widely used in schools and colleges, since publishers can then periodically call in programs to be studied and improved by their authors. The information supplied might be compared to a record showing the percentage of students who have misunderstood each sentence in a text.)

The teaching machine shown in Figure 2 falls far short of the "electronic classrooms" often visualized for the schools and colleges of the future. Many of these, often incorporating small computers, are based on misunderstandings of the learning process. They are designed to duplicate current classroom conditions. When instruction is badly programmed, a student often goes astray, and a teacher must come to his rescue. His mistakes must be analyzed and corrected. This may give the impression that instruction is largely a matter of correcting errors. If this were the case, an effective machine would, indeed, have to follow the student into many unprofitable paths and take remedial action. But under proper programming nothing of this sort is required. It is true that a relatively important function of the teacher will be to follow the progress of each student and to suggest collateral material which may be of interest, as well as to outline further studies, to recommend changes to programs of different levels of difficulty, and so on, and to this extent a student's course of study will show "branching." But changes in level of difficulty or in the character of the subject need not be frequent and can be made as the student moves from one set of material to another.

Teaching machines based on the principle of "multiple choice" also often

show a misunderstanding of the learning process. When multiple-choice apparatuses were first used, the organism was left to proceed by "trial and error." The term does not refer to a behavioral process but simply to the fact that contingencies of reinforcement were left to chance: some responses happened to be successful and others not. Learning was not facilitated or accelerated by procedures which increased the probability of successful responses. The results, like those of much classroom instruction, suggested that errors were essential to the learning process. But when material is carefully programmed, both subhuman and human subjects can learn while making few errors or even none at all. Recent research by Herbert S. Terrace,<sup>4</sup> for example, has shown that a pigeon can learn to discriminate colors practically without making mistakes. The control exerted by color may be passed, *via* a vanishing technique, to more difficult properties of stimuli—again without error. Of course we learn something from our mistakes—for one thing, we learn not to make them again—but we *acquire* behavior in other ways.

The teaching machines of S. J. Pressey,<sup>5</sup> the first psychologist to see the "coming industrial revolution in education," were mechanical versions of self-scoring test forms, which Pressey and his students also pioneered. They were not designed for programmed instruction in the present sense. The student was presumed to have studied a subject before coming to the machine. By testing himself, he consolidated what he had already partially learned. For this purpose a device which evaluated the student's selection from an array of multiple-choice items was appropriate. For the same purpose multiple-choice material can, of course, be used in all the machines described above. But several advantages of programmed instruction are lost when such material is used in straightforward instruction.

In the first place, the student should *construct* rather than *select* a response, since this is the behavior he will later find useful. Secondly, he should advance to the level of being able to emit a response rather than merely recognize a given response as correct. This represents a much more considerable achievement, as the difference between the sizes of reading and writing vocabularies in a foreign language demonstrates. Thirdly, and more important, multiple-choice material violates a basic principle of good programming by inducing the student to engage in erroneous behavior. Those who have written multiple-choice tests know how much time, energy, and ingenuity are needed to construct plausible wrong answers. (They must be plausible or the test will be of little value.) In a multiple-choice *test*, they may do no harm, since a

<sup>4</sup> Terrace, Herbert S. *Discrimination Learning With and Without Errors* (unpublished Ph.D. Dissertation, Department of Psychology, Harvard University, 1961).

<sup>5</sup> Pressey, S. J. A simple apparatus which gives tests and scores—and teaches. *School and Society*, 1926, 23, 373-376. (This article and other articles concerning teaching machines by S. J. Pressey are included in Lumsdaine, A. A. & Glascr, Robert (eds.) *Teaching Machines and Programmed Learning: A Source Book* (Washington, D.C.: National Education Association, 1960).)

student who has already learned the right answer may reject wrong answers with ease and possibly with no undesirable side-effects. The student who is *learning*, however, can scarcely avoid trouble. Traces of erroneous responses survive in spite of the correction of errors or the confirmation of a right answer. In multiple-choice material designed to teach "literary appreciation," for example, the student is asked to consider three or four plausible paraphrases of a passage in a poem and to identify the most acceptable. But as the student reads and considers unacceptable paraphrases, the very processes which the poet himself used in making his poem effective are at work to destroy it. Neither the vigorous correction of wrong choices nor the confirmation of a right choice will free the student of the verbal and nonverbal associations thus generated.

Scientific subjects offer more specific examples. Consider an item such as the following, which might be part of a course in high school physics:

*As the pressure of a gas increases, volume decreases. This is because:*

- (a) *the space between the molecules grows smaller*
- (b) *the molecules are flattened*
- (c) *etc. . . .*

Unless the student is as industrious and as ingenious as the multiple-choice programmer, it will probably not have occurred to him that molecules may be flattened as a gas is compressed (within the limits under consideration). If he chooses item (b) and is corrected by the machine, we may say that he "has learned that it is wrong," but this does not mean that the sentence will never occur to him again. And if he is unlucky enough to select the right answer first, his reading of the plausible but erroneous answer will be corrected only "by implication"—an equally vague and presumably less effective process. In either case, he may later find himself recalling that "somewhere he has read that molecules are flattened when a gas is compressed." And, of course, somewhere he has.

Multiple-choice techniques are appropriate when the student is to learn to compare and choose. In forming a discrimination (as with the device shown in Figure 1), an organism must be exposed to at least two stimuli, one of which may be said to be wrong. Similarly, in learning to "troubleshoot" equipment there may be several almost equally plausible ways of correcting a malfunction. Games offer other examples. A given hand at bridge may justify several bids or plays, no one of which is wholly right and all the others wrong. In such cases, the student is to learn the most expedient course to be taken among a natural array of possibilities. This is not true in the simple acquisition of knowledge—particularly verbal knowledge—where the task is only rarely to discriminate among responses in an array. In solving an equa-

tion, reporting a fact of history, restating the meaning of a sentence, or engaging in almost any of the other behavior which is the main concern of education, the student is to *generate* responses. He may generate and reject, but only rarely will he generate a set of responses from which he must then make a choice.

It may be argued that machines which provide for branching and decision-making are designed to teach more than verbal repertoires—in particular, that they will teach thinking. There are strategies in choosing from an array, for example, which require kinds of behavior beyond the mere emission of correct responses. We may agree to this without questioning the value of knowledge in the sense of a verbal repertoire. (The distinction is not between rote and insightful learning, for programmed instruction is especially free of rote memorizing in the etymological sense of wearing down a path through repetition.) If an "idea" or "proposition" is defined as something which can be expressed in many ways, then it may be taught by teaching many of these "ways." What is learned is more likely to generalize to comparable situations than a single syntactical form, and generalization is what distinguishes so-called deeper understanding.

But not all thinking is verbal. There are, first of all, alternative, parallel nonverbal repertoires. The mathematician begins with a verbal problem and ends with a verbal solution, but much of his intervening behavior may be of a different nature. The student who learns to follow or construct a proof entirely by manipulating symbols may not engage in this kind of thinking. Similarly, a merely verbal knowledge of physics, as often seen in the student who has "memorized the text," is of little interest to the serious educator. Laboratories and demonstrations sometimes supply contingencies which build some nonverbal knowledge of physics. Special kinds of teaching machines could help, for machines are not only not confined to verbal instruction, they may well make it possible to reduce the emphasis on verbal communication between teacher and student.

A more clear-cut example of the distinction between verbal and nonverbal thinking is musical composition. The composer who "thinks musically" does more than perform on an instrument or enjoy music. He also does more than use musical notation. In some sense he "thinks" pitches, intervals, melodies, harmonic progressions, and so on. It should not surprise us that individuals differ greatly in their "abilities" to do this, since the necessary contingencies are in very short supply. One might attack the problem by setting up an explicit kinesthetic repertoire in which "thinking a pitch" takes the form of identifying a position on a keyboard. A device which arranges the necessary contingencies is under development. With its help we may discover the extent to which students can in general learn (and at what ages they can learn most effectively) to strike a key which produces a tone which has just been heard.

Similar devices might generate important forms of nonverbal mathematical behavior or the behavior exhibited, say, by an inventor conceiving of a device in three dimensions, as well as creative repertoires in other forms of art. Here is an extraordinary challenge to the technology of instrumentation.

There is another sense in which the student must learn to think. Verbal and nonverbal repertoires may prepare him to behave in effective ways, but he will inevitably face novel situations in which he cannot at first respond appropriately. He may solve such problems, not by exercising some mental ability, but by altering either the external situation or the relative probabilities of parts of his own repertoire. In this way he may increase the probability of an adequate response.

In this sense, thinking consists of a special repertoire which we may call self-management. For example, the student may alter the extent to which the environment affects him by "attending" to it in different ways. As one step in teaching thinking we must teach effective attending. The phrase "Pay attention!" is as common on the lips of teachers as "Open, please" on those of dentists—and for much the same reason: both phrases set up working conditions. The student may pay attention to avoid punishment and in doing so may learn to pay attention, but where aversive sanctions have been given up, teachers have resorted to attracting and holding attention. The techniques of the publication and entertainment industries are extensively invoked. Primers are usually decorated with colored pictures, and high school textbooks are sometimes designed to resemble picture magazines. Films dramatize subject matters in competition with noneducational films and television.

Attention which is captured by attractive stimuli must be distinguished from attention which is "paid." Only the latter must be learned. Looking and listening are forms of behavior, and they are strengthened by reinforcement. A pigeon can learn to match colors, for example, only if it "pays attention to them." The experimenter makes sure that it does so, not by attracting its attention, but by reinforcing it for looking. Similarly, a well-taught student pays attention to sentences, diagrams, samples of recorded speech and music, and so on, not because they are attractive but because something interesting occasionally happens *after* he has paid attention.

Most audio-visual devices fail to teach attention because they stimulate the student *before* he looks or listens closely. No matter how well a four-colored text or a dramatically filmed experiment in physics attracts attention, it prepares the student only for comics, advertising, picture magazines, television programs, and other material which is *interesting on its face*. What is wanted is an adult who, upon seeing a page of black-and-white text, will read it because it may *prove* interesting. Unfortunately, the techniques associated with captured and paid attention are incompatible. Whenever a teacher attracts the attention of a student, he deprives him of an opportunity to

learn to pay attention. Teaching machines, with their control over the consequences of action, can make sure that paying attention will be effectively reinforced.

Another activity associated with thinking is studying—not merely looking at a text and reading it but looking and reading *for the sake of future action*. Suppose we show a child a picture and later, in the absence of the picture, reinforce him generously for correct answers to questions about it. If he has done nothing like this before, he will probably not be very successful. If we then show him another picture, he may begin to behave in a different way: he may engage in behavior which will increase the probability that he will later answer questions correctly. It will be to his advantage (and to ours as educators) if this kind of behavior is taught rather than left to chance. We teach a student "how to study" when we teach him to take notes, to rehearse his own behavior, to test himself, to organize, outline, and analyze, to look for or construct mnemonic patterns, and so on. Some of these behaviors are obvious, but others are of more subtle dimensions and admittedly hard to teach. Machines have an advantage in maintaining the contingencies required for indirect or mediated reinforcement.

Other aspects of thinking, including the solution of personal problems, can also be analyzed and directly programmed. This is not current practice, however. Students are most often "taught to think" simply by thrusting them into situations in which already established repertoires are inadequate. Some of them modify their behavior or the situation effectively and come up with solutions. They may have learned, but they have not necessarily been taught, how to think.

Logicians, mathematicians, and scientists have often tried to record and understand their own thinking processes, but we are still far from a satisfactory formulation of all relevant behaviors. Much remains to be learned about how a skillful thinker examines a situation, alters it, samples his own responses with respect to it, carries out specific verbal manipulations appropriate to it, and so on. It is quite possible that we cannot teach thinking adequately until all this has been analyzed. Once we have specified the behavior, however, we have no reason to suppose that it will then be any less adaptable to programmed instruction than simple verbal repertoires.

Teaching machines and the associated practices of programmed instruction will have proved too successful if their practical consequences are allowed to overshadow their promise for the future. We need teaching machines to help solve a very pressing problem, but we also need them to utilize our basic knowledge of human behavior in the design of entirely new educational practices.

Teaching machines are an example of the technological application of basic science. It is true that current machines might have been designed in

the light of classroom experience and common sense, and that explanations of why they are effective can be paraphrased in traditional terms. The fact remains that more than half a century of the self-conscious examination of instructional processes had worked only moderate changes in educational practices. The laboratory study of learning provided the confidence, if not all the knowledge, needed for a successful instrumental attack on the *status quo*. Traditional views may not have been actually wrong, but they were vague and were not entertained with sufficient commitment to work substantial technological changes.

As a technology, however, education is still immature, as we may see from the fact that it defines its goals in terms of traditional achievements. Teachers are usually concerned with reproducing the characteristics and achievements of already educated men. When the nature of the human organism is better understood, we may begin to consider not only what man has already shown himself to be, but what he may become under carefully designed conditions. The goal of education should be nothing short of the fullest possible development of the human organism. An experimental analysis of behavior, carried out under the advantageous conditions of the laboratory, will contribute to progress toward the goal. So will practical experiments conducted in schools and colleges with the help of adequate instrumentation.

# Towards a Catholic Concept of Education in a Democracy

*Dom Aelred Graham has made a name for himself as an outspoken, vigorous, and intelligent expositor of a Catholic view of education in the general arena of the current debate on the role of religion vis-à-vis education. This article in its original form was given as a lecture, on March 9, 1961, at the invitation of the Harvard Graduate School of Education. Father Graham's position as then expressed merited a wider audience, which it will now receive through the pages of the Review.*

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CERTAIN PRELIMINARY REMARKS seem appropriate to what follows. First, I am in no sense an expositor of the Catholic viewpoint on education. For one thing, I am not sure that such a viewpoint, except in the vaguest and most general terms, exists. For another thing, I think it right to approach the subject in an enquiring and tentative way. The Catholic Church is commonly associated with dogmatism and an intellectual party line. That this is, in large part, a misconception may emerge from what is now to be put before you. Although it is impossible for me to treat of these matters otherwise than as a Catholic, I hope to do so in such a manner as will win, if not the assent of, at least an unprejudiced hearing from, those with quite different preconceptions from my own.

At the outset of an investigation on a possible meeting point between Catholic and democratic educational theories, it must be acknowledged that the Catholic Church is not, in its essential structure, a democratic institution. Catholicism claims to be, in certain respects, the lineal descendant of the Old Testament theocracy. The Church's official rulers have an authority which is not dependent on the consent of the ruled. The Pope and the Bishops propose to the faithful a body of doctrine backed by divine sanction; this, in the language of Scripture, is "the faith which was once for all delivered to the saints."<sup>1</sup> It cannot, in the nature of things, be repudiated without infidelity. When, furthermore, it is added that, by the historic sequence of events, ecclesiastical potentates took over a number of territorial responsibilities pertaining to the moribund Roman Empire, we have another reason for agreeing with those who insist that Catholicism and democratic forms of government do not easily accord. The Church's authoritarian structure is a bone of contention today. Even among Catholics there are some—persuaded that we are all democrats now—who are reluctant to consider this at times inconvenient truth. But it would be dishonest to pass it over here.

Once these admissions have been made, however, we must take note of two factors which, when their implications are considered, place the Church in the sharpest opposition to any form of totalitarianism. I refer, first, to the Catholic defence of the light of human reason; and, secondly, to the Church's insistence on the worth and inalienable prerogatives of the individual person.

We may consider, briefly, each of these points. As is well known, Catholicism is to be found in alliance with, not opposition to, at least one form of rational philosophy. If we go carefully enough, so the Church holds, we can reach valid conclusions by the use of reason alone. Any truth commensurate with the mind of man is attainable by our own efforts; its mastery is not dependent on a divine revelation. Great as the sum total of the world's crimes and follies may be, inescapable as is the evidence of mankind's inexhaustible stupidity, our rational powers, so Catholicism maintains, remain essentially

<sup>1</sup> Jude, 8.

intact. An unprejudiced agnostic, surveying the Church from the outside, should at least, I submit, be able to make his own the tart observation of an 18th Century Whig Bishop: "the Church, like the Ark of Noah, is worth saving: not for the sake of the unclean beasts that almost filled it, and probably made most noise and clamour in it, but for the little corner of rationality that was as much distressed by the stink within as by the tempest without."<sup>2</sup>

As is well known, Catholicism has been at pains to preserve, even to elaborate, a system of rational thought deriving chiefly from Plato and Aristotle. This particular point was made at length, in various of his writings, by George Santayana. Succinctly and interestingly, he puts it in a letter, dated February 7, 1950, to Ezra Pound. Santayana is commenting on the view that there has been no philosophy in the West, at least since Pythagoras, but only "philosophia epistemologica": that is, preoccupation with theories of knowledge. Then he goes on to say: "That is true of English and even in part of German speculation, but not of the traditional philosophy which has never died out, in the Church and in many individuals."<sup>3</sup>

Catholicism's defence of the validity of the reasoning process, the Church's basic intellectualism, suggests that Catholic educationists are well qualified to assist in solving the problems of education in a democracy.

Democracy, as distinct from impassioned demagogic, is carried on by rational persuasion; what is asserted must be established by evidence; proposals are to be scrutinized in the cool light of reason; feelings and emotions should support, rather than supplant, our powers of thought. It is here that the ancestral faith of Christendom is on the side of the intellect, as against any form of anti-intellectualism. Catholicism was impregnated from the first by Hellenic speculation, and, as the place now occupied by St. Thomas Aquinas goes to show, rational philosophy is as much a part of the Church's tradition as is Hebrew moralism.

The second characteristic of Catholicism, which I mentioned a moment ago, concerns the worth of the individual person. By this I mean something more than, or rather, different from, the value of each soul as this is proclaimed by Christianity considered as a religion of salvation. What I would draw attention to is the direct relationship between the person and that Ultimate Reality, which, as Aquinas put it, "men call God."<sup>4</sup> Personality, for the Catholic thinker, is the most perfect thing in nature. Each one of us, in virtue of his intelligence, of the speculative power of the mind, is, within limits, an autonomous agent. In his conduct he should obey the law, of God, or of

<sup>2</sup> H. R. Trevor-Roper, *Men and Events* (New York, Harper & Bros., 1957), p. 60.

<sup>3</sup> Daniel Cory, (ed.), *The Letters of George Santayana* (London: Constable, 1955), p. 393.

<sup>4</sup> This is a paraphrase of St. Thomas' position in his *Summa Theologica*, Part I, question 2, article 3: "Utrum Deus sit." St. Thomas offers here five arguments for the existence of God, considered under various aspects: e.g., as first mover, first cause, supreme being, etc.; he ends each with some such phrase as "whom men call God." Thus, his fourth argument: "Ergo est aliud, quod omnibus entibus est causa esse, et bonitatis, et cuiuslibet perfectionis, et hoc dicimus Deum."

nature, or even of his fellow men, as that law applies appropriately to him—but he should obey it only as, in his own conscience, he sees the law to be right and just. This brings us to the roots of individual liberty—which is basically the area of what you and I choose to think: and here no arbitrary exercise of power, including ecclesiastical power, has the right to challenge us.

An elucidation of this point is perhaps necessary, if I am not to appear out of touch with the facts of modern life. After all, it is commonly said, is not Catholicism the authoritarian ideology par excellence? Are not the priests there to tell the faithful what they ought to think? For certain temperaments, the notion that Catholicism has all the answers, or at least, a good number of them, is part of the Church's charm. Here at last, it would appear, is certainty, an end to doubt. Readers of Aldous Huxley's novel *After Many a Summer Dies the Swan* will remember an amusing illustration of this point. The passage is diverting enough to be worth quoting:

Meanwhile, look what had happened to poor Tom! Second Secretary at Tokyo; First Secretary at Oslo; Counsellor at La Paz; and now back, more or less for good, in the Foreign Office, climbing slowly up the hierarchy, towards posts of greater responsibility and tasks of increasing turpitude. And as the salary rose and the morality of what he was called upon to do correspondingly sank, the poor fellow's uneasiness had increased, until at last, with the row over Abyssinia, he just hadn't been able to stand it any longer. On the brink of resignation or a nervous breakdown, he had managed, in the nick of time, to get himself converted to Catholicism. Thenceforward, he had been able to pack up the moral responsibility for his share in the general iniquity, take it to Farm Street and leave it there, in camphor, so to speak, with the Jesuit Fathers. Admirable arrangement! It had made a new man of him. After fourteen years of childlessness, his wife had suddenly had a baby—conceived, Jeremy had calculated, on the very night that the Spanish Civil War began. Then, two days after the sack of Nanking, Tom had published a volume of comic verses. (Curious how many English Catholics take to comic versifying.) Meanwhile, he was steadily gaining weight; between the *Auschluss* and Munich he had put on eleven pounds. Another year or two of Farm Street and power politics, and Tom would turn the scale at fourteen stone and have written the libretto of a musical comedy.<sup>5</sup>

And so on and so forth. On all of which I would merely offer the passing comment, that anyone who might be prompted to become a convert to Catholicism for a reason other than that of following the light of truth as he sees it, had better stay where he is. Intellectual and moral responsibility, for those who choose to think at all, can no more be abdicated within the Church than outside it.

<sup>5</sup> Aldous Huxley, *After Many a Summer Dies the Swan* (New York: Avon Paperbacks, 1952), pp. 159-60.

But now it may be helpful to recall a distinction, well-understood by Catholic theologians, but sometimes overlooked by others. I refer to the fact that the external, juridical structure of the Church, in which the Catholic hierarchy plays so active a part, is in quite a different category from the inner spiritual essence of Catholic Christianity—by which is meant, what results from the outpouring of God's grace and the consequent interior life of faith and love, led in varying degrees of intensity by each of the Church's members. This point was made explicitly by Pope Pius XII: "The structure of the Christian society, proof though it is of the wisdom of the divine Architect, is nevertheless something of a completely lower order in comparison with the spiritual gifts which enrich it and give it life."<sup>6</sup>

Now I should like to raise the question quite candidly: whether we Catholic educators give sufficient attention to this inner vital essence of Christianity, whether, perhaps, some of us are not apt to be a little too preoccupied with the Church's regulative functions, as distinct from its interior life, considered as the Pauline Body of Christ.

At any rate, I would suggest that we have here grounds for an examination of conscience, particularly when dealing with young people at the college level. For it is at this age that they are beginning to feel a sense of freedom, that they are breaking loose from domestic ties, leaving behind them childish things. Among those childish things, often enough, are their religious beliefs, or, as I think, to speak more accurately, certain formulations of those beliefs on which they have been brought up. Youngsters at this age not seldom undergo a crisis of conscience, causing anxiety to others besides themselves. How can they be helped?

Not by merely leaving them to their own resources. Not by encouraging them to make some entirely fresh start. But by helping them to see in a new light what, in most cases, they still uncomprehendingly believe. There can be no denying—with them or with anybody else—that Catholicism, in the last analysis, is concerned for man's eternal destiny rather than his temporal well-being; no denying either that authentic Christianity postulates an ineradicable opposition between the Church and the world (however that term is to be defined). But Christianity claims also to be the religion of truth—not any limited subdivision of truth (if such were conceivable)—but, simply, truth. The Fourth Gospel, the most "catholic" of them all, might be described as an account of the revelation of Jesus as the Truth.

What follows? That any attempt to education which does not give first place to the truth of things is, by definition, un-Catholic. "Est modus in rebus," as they say: there is a manner of handling things—milk for babies, meat for the strong; but what the youthful mind should be exposed to is the truth about everything, truth from whatever quarter it may come.

It is here particularly, as it seems to me, that we clergy should watch what

<sup>6</sup> Pope Pius XII, Encyclical Letter, *Mystici Corporis Christi* (29 June, 1943).

we are doing. Church authority should keep to the rules; care should be taken that their limits are not transgressed. Intellectual maturity can never be achieved where there has been no free play of the mind. And where the mind has free play, there will come the inevitable challenge to received opinions. Consequently it is to be expected that a boy at college will have difficulties about religion. If he has not, then I would suggest either that he is exceptionally dull witted, or that there is something wrong with the college. It has not succeeded in awakening the young man from his dogmatic slumber. What is required, I submit, is not that a boy should evade the challenge by taking refuge, either in servile obedience or in blank scepticism, but that he should reintegrate his religious thinking at the adult level. And to do this he normally needs to be helped.

As is well known, it is implicit in the Catholic position that the Church should strive to bring its influence to bear on the faithful, wherever they are and whatever they are doing. How that influence is to be exercised during young people's college years depends on niceness of judgment and the appropriate opportunity. Lecture halls and class rooms, it will doubtless be agreed, are forbidden ground to anything that savors of religious propaganda, or, for that matter, of *irreligious* propaganda. The proselytizing sceptic, we may note in passing, is, after his own sort, just as much a man with a message as the religious devotee. Both, in the field of pure science, should be discouraged. There is no such thing as Catholic, or non-Catholic, mathematics or physics. Literature, psychology, history, should all be taught, at the college level, in such wise that the students are not subjected to the personal religious beliefs, or non-beliefs, of their teachers.

But no one, surely, would deny that a Catholic boy at college needs, and is entitled to, the spiritual and moral support, as well as facilities for the practice, of his traditional faith. How is he to receive all this unimpaired, yet so as to lose none of the benefits coming from the liberal and healthily critical atmosphere proper to a university? As there is obviously no perfect solution to this difficulty, I shall confine myself to the expression of a purely personal opinion on the point. The first task of a boy at college, in the time-honored platitude, is to pursue his studies to the best of his ability; his aim should be to equip himself to understand the world around him, the people he lives with, and, not least, himself. His business, be it noted, is not to change the world but to understand it. A university is a place where one learns how to play the difficult role (for modern man) of being a spectator; one's chief business is not to do, but to get to know. The rest of one's life, for those who choose, can be spent in doing things.

So, in parallel fashion, as I conceive it, with the student's religion. By devotional practice, and such collateral study as he has time for, he should be gaining a deeper insight into his faith. But here also, I would think, the emphasis should be on developing the speculative or contemplative powers

of his mind, rather than on soliciting his interest for some virtuous activity. The most suitable apostolate, so to call it, for one's student days is the apostolate of truth. And truth is apprehended as an end in itself, not as a utility serving some other purpose. With reference to the religious influence to be brought to bear on young people: they are not to be captured for some cause; they are not to be regarded as material of a recruiting campaign for some high endeavor. Always their unique personalities must be respected; their awakening intelligence is not to be tampered with by high powered emotional appeals, but treated as the precise and delicate instrument that, with the proper training, it can become.

Here, of course, I am speaking only in the line of academic study. Life at college is more than a matter of acquiring knowledge: and I say no word in disparagement of those dedicated extra-curricular activities which many serious minded boys and girls manage to find time for. All honor to them. But, speaking precisely of the acquirement of the Catholic mind, I would refer those who might be interested back to certain periods in the Church's history which repay study. They provide more substantial mental fare than most of our modern controversies. The framework of Catholic thought was largely constructed by a group of Greek-speaking intellectuals, in particular by Origen and the Cappadocian Fathers, writing in the third and fourth centuries of our era. The distinctive Western Catholic ideology is chiefly the product of St. Augustine, as mediated through and modified by Thomas Aquinas. A boy at college may not have much time or opportunity to study Augustine or St. Thomas in the original; but he could be helped to understand how it is possible to discern in the Christian religion an intellectual content as challenging, to say the least of it, as anything in Sartre or Wittgenstein or whoever it is that happens to be the fashionable figure in philosophical circles at the moment. Such a student should be able to appreciate—to take another example from past history—how it came about that the thirteenth century University of Paris was in a state of intellectual ferment never perhaps surpassed, in the keenness of mental debate, by any center of learning since that date.

Not that I am advocating any flight to the past. But the past is of value as throwing light upon the present. And the particular light given us here—I suggest, quite tentatively—is that Catholic educationists may have something to learn from an earlier age about meeting the responsibilities of their own time. Do we face the facts of modern life with sufficient honesty? Do we tend, perhaps, to meet the complex problems of today with a peremptory *non possumus*; because we lack the knowledge, or the ability, or, it may even be, the courage, to think creatively: to discover how, without detriment to the Church's age-long dogmatic positions, new applications of Catholic principles may meet the emergence of hitherto undisclosed facts? At any rate, let it be acknowledged that we Catholic educationists are as much in need of self-

criticism, and should be as ready to welcome the constructive criticism of others, as are our colleagues who do not share our faith.

But now—to borrow a metaphor from British parliamentary procedure—let me cross the floor to the other side of the House. The Catholic educationist moves, like everyone else in our Western world, in the mental atmosphere generated by liberal democracy. That, at any rate, is the commonly held assumption; and I am not concerned to question it. By way of illustrating that this atmosphere is, to say the least, congenial, I should like to quote the best brief description known to me of the purpose of education. It is not by a Catholic, but from the pen of Alfred North Whitehead: "Education is the guidance of the individual towards a comprehension of the art of life; and by the art of life I mean the most complete achievement of varied activity expressing the potentialities of that living creature in the face of its actual environment."<sup>7</sup> Whatever a Catholic concept of education may be, this, I would say, must be part of it.

But here let me add something further. If Catholic educationists should examine their consciences on how they discharge their responsibilities in the modern world, so also should the secular and scientific humanist search his heart with regard to his attitude to the Catholic Church. Let me not be mistaken. The activities of Catholics may often be highly vulnerable to legitimate criticism. It is an unqualified benefit that Church officials should have to take account of an articulate public opinion. At a deeper level, it is only to be expected that, on scientific and historic grounds, certain Catholic dogmas will be questioned by those who do not accept the Catholic premises. All that is fair enough and may be taken for granted. But what I have in mind is something different, something that may be lost sight of in the heat of sectarian controversy, something not seldom overlooked by Catholics themselves—and yet it constitutes, as I see it, the chief contribution, perhaps the only acceptable contribution, that the Catholic Church can make, in a general way, to alleviate our educational discontents.

What I refer to, to put it succinctly, is not the supernaturalism of Catholic Christianity, but its naturalism. By this I mean the Church's conviction that there exists a tradition of rational good sense, a cumulative wisdom handed down from generation to generation, so that each individual does not have to make an entirely fresh start. The Church is the protector of common sense, of the validity of objective knowledge, of the ethical dictates of conscience. Quite apart from any divine revelation, we know pretty well where we are; we don't have to begin afresh every morning to find out what life is all about. Man's chief business is not to create a world of his own, but to reconcile himself with the universe as it is: by knowing reality in terms of truth, and loving it in terms of the good. This, broadly speaking, is what I mean by Catholic

<sup>7</sup> Alfred North Whitehead, *The Aims of Education* (New York: Mentor Books), p. 50.

naturalism; and, as is obvious, it is founded in an intellectual tradition of the highest respectability.

Thus we are brought back to the heart searching incumbent upon those secularist liberals who find themselves antipathetic to the Catholic Church. It has been said that anti-Catholicism is the liberal variant of anti-Semitism. This may be a little too facile. But there is another point that can fairly be made: If one's protest against, let us say, the Catholic appeal to natural law were based (it could be unconsciously) on the individual's radical impatience with any checks on what he may choose to think or say or do, then a different situation arises. Such an incontinent assertion of the ego might—might it not?—be a form of *hubris*: that insolence towards the universe which the Greeks so greatly dreaded. They dreaded it because it brought as its inevitable *nemesis* the individual's downfall, and eventual destruction, under the force of Necessity or Fate: superior even to Zeus.

These somewhat solemn thoughts have been suggested by a critique of a modern philosopher of education, now dead, but still surviving in his academic influence—John Dewey. The author of this critique is not a Catholic—far from it; he boasts of not even being a Christian. His name is Bertrand Russell. Russell quarrels with Dewey on grounds that are purely philosophical. He dissents from Dewey's "most distinctive philosophical doctrine, namely the substitution of 'inquiry' for 'truth' as the fundamental concept of logic and theory of knowledge."<sup>8</sup>

Dewey, it will be remembered, makes *inquiry*, not truth or knowledge, the essence of logic. He is more interested in seeking than in finding, in process rather than in achievement. Whether a belief is good or bad cannot be determined, according to Dewey, by any objective criterion. What matters is whether the belief in question is "satisfactory" or "unsatisfactory." Russell detects in all this—correctly, it seems to me—an educational theory based on the belief in human power to manipulate the data of experience and an unwillingness to submit to "stubborn facts." Dewey's philosophy is a power philosophy; though of community, rather than individual, power.

It is this element of social power, Russell suggests, that makes Dewey's philosophy of instrumentalism attractive to those who are more impressed by our new control over natural forces than by the limitations to which that control is still subject. Then Russell adds, in words with which I could not more cordially agree:

In all this I feel a grave danger, the danger of what might be called cosmic impiety. The concept of "truth" as something dependent upon facts largely outside human control has been one of the ways in which philosophy hitherto has inculcated the necessary element

<sup>8</sup> Bertrand Russell, *A History of Western Philosophy* (New York: Simon & Schuster, 1945), p. 819.

of humility. When this check upon pride is removed, a further step is taken on the road to a certain kind of madness—the intoxication of power which invaded philosophy with Fichte, and to which modern men, whether philosophers or not, are prone. I am persuaded that this intoxication is the greatest danger of our time, and that any philosophy which, however, unintentionally, contributes to it is increasing the danger of vast social disaster.<sup>9</sup>

To what extent Dewey's theories still persist in academic circles, I am not qualified to say. I seem to have heard that his vogue is not what it was. But am I wrong in suggesting that the emphasis in the lecture room is still very much on what Kierkegaard called "the category of the interesting"?<sup>10</sup> The fun still lies in seeking rather than finding. Why is this? Might it not be because, while we are pursuing the truth, the ego can still assert itself, but once the truth has been found, no place, in that particular, is left for self-assertiveness?

In the same line of discourses, as might have been expected, comes the voice of a novelist of genius, still, so I understand, the guide, philosopher, and friend to not a few of our more sensitive modern young men: "Believe those who are seeking the truth," writes André Gide. "Doubt those who find it; doubt everything; but don't doubt yourself."<sup>11</sup> These, as they appear to me, rather nonsensical remarks are so often quoted nowadays that they must be presumed to reflect a popular sentiment. We may leave such counsels, with the parting comment that perhaps they are all of a piece with an author whose peculiar brand of acknowledged intellectual integrity took the literary form of repeated undressings of himself in public, over a long period of years. Whether the resulting spectacle is to be described as courageously different, a bold challenge to convention—or as not particularly wholesome, even unappealingly perverse, will depend, I suppose, on your point of view.

But let us return more directly to our theme and to a mind far steadier and more profound. Whitehead again, with his usual succinctness, has put this whole matter in its proper context: "In the schools of antiquity philosophers aspired to impart wisdom, in modern colleges our humbler aim is to teach subjects."<sup>12</sup> There, I think, we touch on a distinctive feature of the Catholic educational ideal. The Church would say that education must still be linked with the imparting of wisdom. With this view Whitehead agrees, though, of course, there is room for controversy over what the content of that wisdom might be. "What I am anxious to impress on you is that though knowledge is one chief aim of intellectual education, there is another ingredient, vaguer but greater, and more dominating in its importance. The ancients called it

<sup>9</sup> *Ibid.*, p. 828.

<sup>10</sup> Dom Aclred Graham, *Christian Thought and Action* (New York: Harcourt Brace, 1958), p. 151.

<sup>11</sup> André Gide, *Journals* (New York: A. A. Knopf, 1947).

<sup>12</sup> Whitehead, *op. cit.*, p. 40.

'wisdom.' You cannot be wise without some basis of knowledge; but you may easily acquire knowledge and remain bare of wisdom."<sup>13</sup>

What follows when, for example, the educational process between the age of eighteen and twenty-two is uninformed by any principles of traditional wisdom? One consequence, I submit, is that, while the student learns to be critical and cautious in certain departments of study, he remains credulous and suggestible in the wider field of knowledge. Being ready, like the Athenians, to listen to anything new, he can easily be taken in. Nor is it the students alone who are so affected; their professors and instructors, from whom one would expect a more questioning approach, at times appear embarrassingly eager to be abreast of the latest academic fashion.

The point may be briefly illustrated by a passing reference to Freud and psycho-analysis. Now let me prefix this brief parenthesis by saying that I have no prejudice against psycho-analysis: no *conscious* prejudice, that is, because I hesitate to think what a Freudian may already have deduced about the content of my unconscious. Certainly I should not wish to be classed among those moralists who appear so reluctant to admit the fact that sex has come to stay. As a layman in these things it seems to me simply a matter of evidence and the correct inferences to be drawn from it. What do the psycho-analysts claim to do? Is it worth doing? Do they do it? These are some of the questions, I submit, which we need to have answered in rather more detail than is generally provided by the advocates of this form of therapy.

Recently I had occasion to read again quite carefully through Freud's *A General Introduction to Psychoanalysis*. Admiration for the creative imagination, the brilliance and insight there displayed, still could not overcome the recurring doubt that much was being superimposed upon the data, not elicited from it. And how carefully were the data established in the first place? It was therefore with some interest that I came across apparent support for these misgivings from a scientific expert qualified to discuss psycho-analysis within its own terms of reference.<sup>14</sup>

In a chapter entitled *What is wrong with Psycho-Analysis*, Dr. Eysenck argues that what is chiefly wrong is that certain psycho-analytical theories which, on strictly scientific grounds, are no longer tenable, still have wide popular acceptance. Among the theories for which there is no conclusive evidence, is one that is central in the approach of many practicing psychoanalysts, namely, the Freudian interpretation of dreams as an answer to repressed wishes. Freud argued that all dreams are in reality wish fulfilments; he quotes in support experiences of explorers and others that, when they are

<sup>13</sup> *Ibid.*, p. 41.

<sup>14</sup> For those interested, I refer to a book by H. J. Eysenck, *Uses and Abuses of Psychology* (London: Penguin Books, 1953, 1959). Dr. Eysenck is Professor in Psychology in the University of London, and Director of the Psychological Department at the Institute of Psychiatry (Maudsley and Bethlem Royal Hospitals). He has also been Visiting Professor in the United States, at the Universities of Pennsylvania and California.

starving in their camps, they tend to dream about food. Here, as Eysenck points out, Freud does not provide us with experimental evidence of any kind; he relies on anecdotal evidence of the most unreliable variety, second hand, selective and incomplete. Little value can be attributed to it. Then Dr. Eysenck goes on:

Fortunately we have more recent reports of adequately controlled, well-carried-out experiments into human starvation, experiments in which the participants lost almost a quarter of their bodily weight. Detailed records were made of their dreams, and comparisons with properly fed individuals failed to show any tendency, however small, for the starving subjects to report more food dreams than the control group. Thus experimental procedures show Freud's anecdotal evidence up as inconclusive and irrelevant; they also disprove his fundamental hypothesis regarding the nature and purpose of the dream.

. . . . .

Much may be salvaged (from the Freudian system) and taken over into newer systems of personality description; indeed, psychology will for many years to come be deeply indebted to the intrepid genius who infused new life into a rather philosophical and academic discipline. But however highly we may value these hypotheses and insights, psychoanalysis as a self-contained system claiming to afford a scientific view of human nature is dead, even though the embalmed corpse may still be exhibited to the faithful.<sup>15</sup>

I gladly leave it to Dr. Eysenck's peers in the fields of science and psychology, to pronounce upon the validity of his observations.

So much for this Freudian digression. It has at least a negative relevance in our attempt to formulate a Catholic concept of education in a democracy. For education is more than a matter of academic training; at college, the student's total personality is being affected. We have all experienced, or observed in others, the difficulties, the dark hours of trial, sometimes the life-and-death crises, that young people become involved in during these years. Let nothing I have said, then, belittle the work of the psychotherapist on such occasions, who may assist in elucidating the difficulty, who can at least listen and perhaps reassure. There may be certain cases when the experienced psychiatrist is the person best qualified to lead the individual towards the goals of self-knowledge and self-acceptance.

Nor should we overlook the lighter side to all this. It would be spoiling sport to deny curious minded youngsters, eager to try everything once, a session or two on the couch, always provided that they can afford it. Often they are suffering from a malady no more serious than a failure to have won sufficient of the world's attention for themselves. What compensation could be more consoling, what opportunity for self-expression less inhibited, than to

<sup>15</sup> *Ibid.*, p. 232.

have a sympathetic analyst as an audience all to oneself? Could we here, almost by accident, have touched on the heart of the matter? I would suggest that there is a natural affinity between psycho-analysis and intellectual, though not necessarily physical, adolescence. I think most Catholic educationists would agree that, for young people to be living in an atmosphere where Freud and his disciples are regarded as throwing the most penetrating light on human motivation, is not a healthy state of affairs. There is, to say the least, a danger of arrested development. The case against Freud is not that he is wrong; but that he is inadequate.

What the average young man most needs today, in my opinion, is not analysis, but synthesis; though, of course, synthesis based on total understanding. This is one way of describing the Catholic educational ideal—not yet, perhaps, fully realized anywhere: to provide coordination within the individual personality, to give direction, in the light of all the available knowledge.

*Gnothi seauton*—“Know thyself,” was written centuries before Christ, on the walls of the Temple at Delphi. Accept yourself, love and be compassionate, not only towards others, but also towards yourself, is part of the New Testament message. Live not in your own little world, but in the world as it actually is. Acquiesce in your limitations. Be not righteous overmuch. Lose yourself in the cause, in order to gain self. Cherish humility—in the sense that humility does not consist so much of thinking little of self, as in hardly thinking of self at all. These are the commonplaces, the veritable bromides, of Catholic spirituality. And along with them goes the insistence that life has a purpose, that we are responsible agents, that we are, within limits, shapers of our own destiny, that, in a measure at least, the fault is not in our stars, but in ourselves, if we are underlings.

Such are some of the beliefs, part of the Catholic atmosphere, which the Church desires her young people, so far as possible, to live in. They bring me back, once more, to some words of my favorite Harvard philosopher, A. N. Whitehead:

We can be content with no less than the old summary of educational idea which has been current at any time from the dawn of our civilization. The essence of education is that it be religious.

Pray, what is religious education?

A religious education is an education which inculcates duty and reverence. Duty arises from our potential control over the course of events. Where attainable knowledge could have changed the issue, ignorance has the guilt of vice. And the foundation of reverence is this perception, that the present holds within itself the complete sum of existence, backwards and forwards, that whole amplitude of time, which is eternity.<sup>18</sup>

But it is time I tried to draw these scraps and pieces into some kind of unity. Perhaps one or two indications have already emerged of what a Catholic con-

<sup>18</sup> Whitehead, *op. cit.*, p. 26.

cept of education might be, or, at any rate, of what it is not. Further than that I think it would be presumptuous of me to go. So I shall end by sketching, in a few brief phrases, what, as it seems to me, might be the role of a Catholic educator.

In the first place, I think he should be one who sees in his religion much more than a system of credal formularies which claim his adherence, or a code of conduct which he strives to practice, or a ritual to which he conforms; though all of these, admittedly, are a part of the whole. He should recognize in his religion man's deepest and most vital response to ultimate Reality, the only level on which he can achieve a satisfactory adjustment, both to what is outside himself and what is within. Seeing matters thus, there is no longer need for him to be self-consciously "religious"; he is free to devote himself to the technical business of education.

On the nature of that business, it is unnecessary for me to enlarge. First, the mastery of one's subject, combined with a frank admission of the limitations of one's knowledge. Then, the careful attention to one's expository method: with an eye always to the students' powers of assimilation, rather than an exhibition of one's own brilliance. Next, I suppose, the avoidance of emotional appeals, no taking advantage of one's position to air personal nostrums, or if this is done, let it be done light-heartedly and in passing and openly admitted, and compensated for by a honest presentation of views that one may not share. All this, obviously, has its application, whatever the subject: for example, a scrupulous respect for fact and, so far as it can be achieved, impeccable reasoning, are as much to be looked for in the exposition of religion, as in the sciences or humanities.

But here, you will be saying, I am merely describing what is required from any educator who takes his profession seriously. Let me own the soft impeachment. Just as each discipline has its own autonomy, so its exposition—as Aristotle remarked some time ago—is controlled by the matter in hand. Nothing extraneous should be dragged in. Moralizing and edifying discourse have their place and time; but their place is not the science laboratory, nor their time a class period for factual presentation.

So it is that a Catholic educator, in this age of democracy, is to be judged by the same standards as his non-Catholic colleague. He can claim no special privileges, no exemptions. When he is discussing any subject, except religion, it should, I think, be impossible to tell whether he is a Catholic or not. He will not state one side of the case only: for that would be un-catholic: since "catholic" is a Greek word meaning "according to the whole." If, however, out of his devotion to the truth, without special pleading or forcing the note, he happened to say something rather more luminous than most of his contemporaries are saying, that also, I would think, might emerge from the nature of the case. But here we should be above the level of any sectarian controversy—shouldn't we? Because truth is not *for* or *against* anything. Truth simply is.

# Public Education and the Good Life

*Professor Frankena here makes a reasoned plea for support of our present religiously neutral public school system in America. In the current hue and cry for a "return to religion" he feels that we run the risk of so changing our schools that we endanger their great historic roles as protectors of freedom of thought. He asserts that the public schools may properly do their share toward strengthening the good life—in its several meanings—without becoming proponents of any specific religious view.*

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This paper is an attempt to say something about the subject which usually goes under the title of "moral and spiritual values in the public schools" and sometimes under the clearer but still less lovely label "character education in state-supported institutions." More specifically, it will address itself to one of the problems about public education for the good life, namely the problem which is raised by the doctrine of the separation of church and state. It seems to me that this is one of the topics in the philosophy of education on which a philosopher, and in particular a moral philosopher, may be able to shed some light.

## I

To get the problem stated let us assume, as Plato and Aristotle do, that the end of the state and of education is the good life of the members of society. As C. M. Bowra writes, however, "The Greeks distinguished between the good man and the good life."<sup>1</sup> A recent television speaker made the same distinction in saying of someone that "he was too good for his own good." The point is that there are two kinds of good life. One kind of good life is much described in funeral orations, for funeral orators are (or at least used to be) prone to say, and to say it loudest when it is least true, that the deceased person led a good and virtuous life, and that no one surpassed him in benevolence and justice. When we say that a man has led a good life in this sense (and notice, we say "led" not "had" here), we mean that he has led a *morally* good life, a life of honesty and service, a "good and useful" life. But the phrase "a good life" has another meaning also. During the war Richard Tregaskis told in his *Guadalcanal Diary* of being in a fox-hole watching the descent of a bomb which seemed certain to strike just where he was crouching. It did not, of course, but in the brief moment during which Tregaskis expected it to, his past flashed before him, and he said to himself, "Well, it's been a good life; I would live it again." He did not mean that he had lived a morally good life. No doubt he had, but for him to say so would have been out of place. What he meant was that on the whole his life had been an enjoyable or happy one, which he would choose again if given a chance. It was good in the way Browning is lyrical about in the lines:

How good is man's life, the mere living! how fit to employ  
All the heart and the soul and the senses for ever in joy!

There is, then, the good life in the sense of the morally good or virtuous life, and the good life in the sense of the happy or satisfying life. For convenience of reference in the rest of the paper, I shall call the former the *moral* life and the latter the *good* life. Now, when I said above that the end of education is the good life, I meant that education must promote both the good life in this narrower sense and the moral life, or in more traditional terms, both the happy and the virtuous life. It must do what it can to make men good, and it must do what it can to make their lives so satisfactory that they would be willing to live them again in preference to others they might be offered.

Perhaps no one will dispute the view that public education, formal or informal, if it exists at all, must be concerned to promote the good life. Not all would grant, however, that the public schools may properly seek to advance the moral life, though they give different reasons for their opinion. Never-

<sup>1</sup> C. H. Bowra, *The Greek Experience* (Cleveland and New York: World Pub. Co., 1957), p. 85.

theless, I shall assume here that public education is and should be concerned to promote morality as well as happiness. But, while formal public education, on this assumption, has the same ends as education in general, it is in a special position. Just because it is supported by the state, it has a limitation which private education does not have. This limitation is not just a matter of constitutional law or of the intentions of our founding fathers, as many seem to think; it is a matter of philosophical principle which underlies, or at any rate should underlie, both the constitution and the thinking of our founders. The limitation, as I understand it, is that, in the interests of freedom of conscience, thought, and worship, the public schools, being organs of the state, cannot teach religion. Like the state itself, they must be neutral with respect to the various churches and religions; they must be neutral even as between religion and anti-religious philosophies of life. They can and should teach informative courses *about* religion—its history, beliefs, institutions, influences, etc.—but they may not seek to inculcate or propagate any particular kind of ultimate creed, religious or non-religious. What J. S. Mill says about universities applies to public education as a whole:

. . . it is not the teacher's business to impose his own judgment, but to inform and discipline that of his students. . . . The proper business of a University is . . . not to tell us from authority what we ought to believe, and make us accept the belief as a duty, but to give us information and training, and help us to form our own belief in a manner worthy of intelligent beings . . .<sup>2</sup>

This neutralist, but not necessarily secularist, conception of the relation of state-supported institutions to religion has been subject to heavy attack during "the current upsurge of religiousness" which the events of our century have brought about. The spokesmen of religion are generally against it, and many public school teachers, themselves religious, are uncomfortable with it. In the rest of this paper, however, I shall take it for granted.<sup>3</sup>

At this point we come face to face with our problem. We have said both that public education should promote the good and the moral life, and that it should be neutral with respect to religion. But, from these two propositions taken together, it follows that public schools and colleges can promote the good life and the moral life only if and insofar as these do not require or rest on religion, i.e., on religious belief and observance. We must therefore try to determine whether, how, and to what degree public education can be concerned to advance the good life and morality when they cannot be concerned to advance religious faith and worship. Robert M. Hutchins raises this problem when he says:

<sup>2</sup> J. S. Mill, *Inaugural Address* (London: Longmans Green, n.d.), pp. 89-40.

<sup>3</sup> For a statement of my position see "A Point of View for the Future", in *Religion and the State University*, E. A. Walter, (ed.), (Ann Arbor: Univ. of Michigan Press, 1958), pp. 295-309.

... public institutions seem required by the Constitution to be secular. Yet it must be admitted that religion is of the greatest moral importance. . . . Men, simply because they are men, are unlikely to find within themselves the power that can bring the good life and the good state to pass. . . . If a college cannot make its students religious, it cannot, to that extent, make them good.<sup>4</sup>

But his subsequent discussion does not help us very much, because he is concerned with higher education in general, not with public education as such, whether higher or lower. The drift of his thesis that religion is indispensable to the good and the moral life, however, must be noted, for one who accepts this thesis *without qualification* must conclude either that our public schools must teach religion, or that they cannot promote morality or the good life. Either way, as I see it, the upshot for him is that public education should go out of business. On the other hand, it need not go out of business, if there is any important extent or way in which the good and the moral lives are independent of specifically religious beliefs and experiences.

## II

To deal with this problem we must now try to discern somewhat more clearly and fully just what the public schools, in their programs of education for the good and the moral life, are debarred from doing on the above view of their relation to religion. Let us look first at education for the good life, i.e., non-moral education. What is it that the school might possibly do here?

(1) They might teach an individual, on the basis of human experience and reflection, what the ingredients of the good life—the values of human life—are. (2) They might provide him with an experience and an appreciation of some of these values, e.g., the enjoyment of music or poetry. (3) They might furnish him with knowledge, which is at once one of the great goods of life and a necessary means to the realization of the others. (4) They might train his intellect, imagination, and sensibility so as to enable him to discover further knowledge, perhaps even to discover new values or forms of satisfaction. (5) They might help him to work out a philosophy of life, which seems to be one of the things human beings need to be happy.

Now we can see what the *public* schools, by the fact that they are debarred from teaching religion, are precluded from doing with respect to the good life. They cannot advocate any specifically religious values, i.e., values whose realization is conditioned by religious belief or observance, as necessary for the good life. They cannot provide the student with any first-hand experience of such values, e.g., of the values of worship or of "the peace that passeth understanding," though they can through the teaching of art and literature

<sup>4</sup> Robert M. Hutchins, *Freedom, Education, and the Fund* (New York: Meridian Books, 1956), pp. 91-92.

give him an imaginative realization of these values, along with others. Whatever knowledge they may pass on to him, they cannot pass on any of the "truths" of religion, natural or revealed. The fear of the Lord may be the beginning of wisdom, as the author of *Proverbs* asserts, but the public school cannot teach the "wisdom" of which this "fear" is the beginning, though it may and should inform its pupils about the history, beliefs, and institutions of the religions which are inspired by this "fear." As for teaching its pupils a philosophy of life—this it cannot do for the same reason that it cannot teach a religion. As Mill says, all it can do is to give them "information and training" so that they may form their own belief "in a manner worthy of intelligent beings."

Coming to education for the moral life, we find that the case is similar.<sup>5</sup> As non-moral education must teach *values* and provide the knowledge and intellectual training necessary to realize them, so moral education must teach *principles* of conduct, together with the knowledge and intelligence needed to apply them. For we must know what to do, and, as Aristotle pointed out, the process of determining what we should do takes the form of a "practical syllogism." There is (a) the rule, e.g. that of keeping promises or of not harming anyone. There is (b) the factual knowledge that one has made a certain promise or that certain actions will cause harm to certain people. And there is (c) the conclusion that one should or should not do a certain deed. To begin with, at least, the principles and the factual knowledge which we use in such practical syllogisms must be taught us by our elders; we may revise or add to them later, but the ability to make such revisions and additions must also be a product of our education.

Here again there are some things that the public educator cannot do. Firstly, there are some principles which he cannot teach, even if they are valid, e.g., that we ought to worship God. Such principles depend on the truth of certain corresponding theological beliefs, and so may not be inculcated by the state or its agencies. Secondly, at least in our culture, we normally expect a moral rule to be supported by a reason; recent moral philosophers even go so far as to claim that "morality" means "the intelligent following of rules the point of which is understood."<sup>6</sup> And reasons for a rule may be of two kinds. They may be such as to *justify* the rule, or they may be such as to *motivate* people to act according to it. If a child asks "Why should I keep my promises?" and I answer, "Because people won't like you if you break them," I give a motivating reason; but if I reply, "Because you are taking unfair advantage if you don't keep them," I give a justifying one. So the moral teacher must teach reasons along with his principles; to parody another *Proverb*, with all our getting we must get understanding. *But*, if he is a public school teacher

<sup>5</sup> For a discussion of some general problems of moral education see my "Toward a Philosophy of Moral Education," *Harv. Ed. Rev.*, 28 (1958), p. 300-313.

<sup>6</sup> R. S. Peters, *The Concept of Motivation* (London: Routledge, 1958), p. 87.

he cannot teach, as a reason for doing anything, whether justifying or motivating, any belief about God or about a hereafter. Such theological justifications and "religious sanctions" he must avoid. Hamlet was taught that the Almighty had set his canon 'gainst self-slaughter, as a reason for not making one's quietus with a bare bodkin, but that was before the day of proper public schools. The proper public school teacher, while he need not (in fact may not) deny the validity of theological reasons, must in his official teaching limit himself to more humanistic and this-worldly ones. He may teach the tragedy of the Prince of Denmark, but cannot recommend his reasoning.

Moral education involves more than teaching *principles*, however; it also involves teaching *virtues*, that is, "right habits" or dispositions to act in accordance with moral principles. But just as there are certain widely accepted *values* and *principles*, so there are also certain highly regarded *virtues* which cannot be part of the content of public education, for example, what the ancients called piety or what the Christians call faith and hope (and at least part of what they call love). The public schools may seek to teach St. Thomas' human virtues but not his theological virtues—which indeed cannot be taught at all but only infused by divine operation.

Specifically religious values, principles, and virtues, then, as well as specifically religious reasons and sanctions, are not to be taught, inculcated, or employed in public schools, however concerned they may be to advance the good or the moral life. This may be disturbing to the proponents of religion, but the spokesmen of public education must insist on it, and its practitioners must remember it whenever they are acting in their official capacities. It may be remarked, however, that just as the public educator is debarred from teaching values, principles, or virtues which presuppose the acceptance of religious beliefs, so he is also debarred from teaching any values, principles, or virtues which presuppose the acceptance of anti-religious beliefs, e.g. such naturalistic ones as those of John Dewey. But it should be added at once that he may try to give his students an *understanding* of both the religious and the naturalistic ways of thinking, feeling, and living through a study of representative poems, paintings, and other works of art, as well as of representative religions and philosophies. He cannot seek to conduct them in either way, but he may and should try to show them what each way is like to one who follows it. In such imaginative realization of opposing ways of life, for which belief is not required but only a "willing suspension of disbelief," lies one of the chief contributions of the study of art and literature.

This seems a good place to speak of the vexed and vexing subject of "spiritual values." Is there a place for such values in the public schools? It is almost like asking if the public schools can be on the side of the angels or against sin? One cannot without qualification say *yes*, but one hesitates to say *no* even qualifiedly. For the phrase "spiritual values" is at once vague and emotionally charged. What does it mean? It is not only the term "spiritual" that is unclear.

The word "values" is also used here in a confusing way. It is used not only to stand for what I have called *values* (i.e., things which are good), but also for what I have called *principles*, *virtues*, and even for *beliefs*. Let us for the moment allow it to keep this wide meaning. Then what does "spiritual values" mean? It might mean (and, I am inclined to say, should mean) "specifically religious values." In this sense, as I see it, public education cannot be concerned to promote spiritual values. But "spiritual values" is often used to include also values which are not so specifically religious—namely, aesthetic, moral, and intellectual ones. In this sense of the phrase there definitely is a place for some "spiritual values" in the public school.

### III

In saying, as we have, that certain so-called values, principles, and virtues (namely, religious ones) cannot be part of the concern of public education even though its aim is to promote the good and the moral life, we have been implying that there are still others which do not depend on the acceptance of any religious belief and which may therefore be a part of its concern. Here, however, we run up against the contention, referred to earlier, that religion is indispensable both to the good and to the moral life. If this contention is true without qualification, then, as we saw before, public education must disown the endeavor to advance either the good life or the moral one—in short, must go out of business. We cannot here discuss it as fully as we should for a definitive answer, but we can try to make some clarifications and come at least to some partial or tentative answers.

Like the phrase "spiritual values," the thesis of the indispensability of religion is very unclear and emotionally charged. Those who maintain it rarely make clear just what they mean by "religion," just what they mean by "indispensable," or just what they think religion is indispensable to. Let us begin with a partial clarification of the term "religion." In discussions of the treatment of religion in state-supported institutions "religion" is sometimes used to mean any kind of ultimate creed, and sometimes to mean only such ultimate creeds as are typified by Judaism, Christianity, or Islam. In the former sense, even atheism and naturalism are religions; in the latter, however, they are anti-religions. I propose that we use "religion" in the latter or narrower sense, and have so been using it. Then the thesis that religion is necessary to the good and the moral life does not mean merely that *some* kind of ultimate commitment is required. This, I think, may be admitted. The thesis means, rather, that a specifically theistic kind of ultimate commitment is required. And, in this sense, it is not obviously true.

It may, of course, be admitted that such a religious commitment is required for *some* widely-accepted values, principles, and virtues, namely, the specifically religious ones of which we were speaking earlier. But it cannot simply

be taken for granted that these values, principles, and virtues, widely-honored as they may be, are in fact genuine, valid, or well-founded. They may be, but to assert that they are presupposes the truth of the religious beliefs on which they depend, and the truth of these religious beliefs cannot simply be assumed, particularly not in a debate about any public functions. For, if these beliefs are not true, then the religious values, principles, and virtues in question have no sound basis, and need not be taken seriously. Some may still try to argue that they will have a beneficent effect if they are taken as regulative ideals, but others will reply that they are a snare and a delusion, distracting mankind from its proper study. To this debate the state and its schools can hardly be a party. Nor can we be a party to it here.

Even if we grant, however, that such *religious* values, principles and virtues are valid and are an indispensable *part* of the good and the moral life, it may still be that there are *others* to which religion is *not* indispensable. And, if there are important values, rules, and virtues which do not necessarily rest on specifically religious beliefs and observances, then it may well be contended that these are properly a concern of the state and its schools, and that the peculiarly religious ones are more properly the care of the individual, his church, or some other private and voluntary association to which he belongs. It is an old and respected principle that we must distinguish the temporal and the eternal, the natural and the spiritual. The same authority who said, "He who is not with me is against me," also said, "Render unto Caesar the things which are Caesar's, and unto God the things that are God's."

With these general remarks out of the way, we may divide the doctrine of the indispensability of religion into two parts: first, the claim that religion is indispensable to the good life, and, second, the assertion that it is indispensable to the moral life. In connection with the former we at once encounter the historic thesis that the supreme good and the highest happiness consist in the contemplation of, or communion with, God. If this thesis is correct, then a life which knows not God is at best a very incomplete and truncated good; it may be worthless, dust and ashes, a broken cistern that can hold no water; it may even be a snare and a delusion whose apparent values only serve to distract man fatally from his true long run interests. We cannot here try to determine the validity of the thesis; but we may note, that, whether it is true or false, it need be taken seriously only if there is a God, and that, even if true, it does not prove there is a God. I do not mean to question that there is a God. I doubt, however, that his existence can be proved in any publicly available way, and, if this is true, then we certainly cannot take it for granted in such a discussion as the present one. Nor can we take for granted the claim that man's true interests lie, not in any values he can enjoy in this life, but in his finding an assurance that he will know God in another.

The crucial question for our purposes, as was indicated a moment ago, is whether there are any important values or ingredients in the good life which

are not dependent on any religious belief. To many people it seems clear that there are such goods as knowledge, artistic creation and appreciation, friendship, love, freedom, sense of achievement, etc., which do not have any religious faith as a necessary condition of their attainment or enjoyment. Some may reply that these goods are illusory or even delusive, but to say this presupposes a certain religious conception of the universe and so begs the question. In any case, not all religious thinkers have taken this hard line. It may be that the values mentioned gain an additional dimension if they are woven into a religious life, but it is at any rate plausible to hold that they do or at least may bring a genuine worthwhileness into the life of an unbeliever as well. Even if they do not constitute a good which is self-sufficient in Aristotle's sense, they may still be desirable in themselves.

If this is so, then it is also plausible to maintain that religion is not so indispensable to the good life that only a religious institution can minister to such a life. For then it is possible that there is a part or aspect of the good life for which a neutral institution such as the state may be concerned, even if there is also another part or aspect of it which is beyond the care or competence of such an institution. That is, there may be good things which are Caesar's, as well as good things that are God's. St. Thomas implies as much when he finds a place for natural as well as supernatural happiness.

#### IV

The question whether religion is necessary to morality is too large to deal with adequately in the space that remains. But perhaps we can accomplish something worthwhile if we make some distinctions. For those who answer the question in the affirmative usually neglect to make these distinctions, and so can be at least partly answered by making them. There are, in fact, several senses in which morality may be and has been said to be dependent on religion. (1) It is often held to be *causally* or *genetically* dependent on religion. This is asserted, for example, by those who argue that our democratic morality is a historical outgrowth of the Christian religion, coming into the world as a result of the advent of this religion. This contention is not unquestionable, but let us grant it for the sake of discussion. It does not follow that our morality is strictly dependent on religion. Even if historically our morality was a product of Christianity, it may still be that our morality could have arisen in some other way. History only happens once, and, as Hume pointed out, one instance does not prove a necessary connection or even a constant conjunction. In any event, even if part of our morality has religious faith as a necessary condition, it does not follow that all of it does.

(2) Morality may also be said to rest on religion in a *psychological* sense. That is, it may be held that the *motivation* to be moral presupposes certain religious or theological beliefs—in short, that morality requires religious

sanctions or motivating reasons, as I called them earlier. This is what D. E. Trueblood means when he speaks of "the impotence of ethics" in *The Predicament of Modern Man*, and it seems to be what Hutchins has in mind in the passage quoted above. Now this contention is not in the least plausible if it is meant to say that *no one ever* has any motivation to do what is right which is not the result of some specifically religious conviction on his part. Many people have often been moved to do what is right by considerations which are not religious. Perhaps all who are moral have sometimes been moved by such considerations as a desire for peace or for a stable social order, even if St. Augustine talks in one place as if he would have been an Epicurean of the worst sort if he had not believed in God and a hereafter. For some moral persons religious considerations seem never to play a part at all. Trueblood himself allows that atheists like Dewey are often kind and good. So the contention must be modified to say either (a) that *some* people will only be moral if they have certain religious beliefs, or (b) that *no one* will be *completely* moral who does not have these beliefs, or (c) that *most* people will be adequately moral only if they have these beliefs.

Let us consider these three more qualified tenets. I should like to point out that it is very difficult to get conclusive empirical evidence for or against such assertions, and that those who make them seldom adduce such evidence in a form which cannot be challenged. Still, it does look as if (a) is true, i.e., that *some* people will be moral only if they have certain religious beliefs. But, notice, this fact does not prove that these religious beliefs are true or even that they should be taught. It certainly does not prove that there is no room in the schools for moral education which is non-religious; the most it would show is that such education must be supplemented, perhaps in the home or the church, by a religious one.

As for (b)—that only a religious person will be completely virtuous, or at least as virtuous as mortal man may—this too may be true. But, once more, it does not follow that all moral education must be pervaded by religion; at most it follows only that public education needs to be supplemented by a religious one—and this follows only if there is independent ground for believing that religion is true. For it will hardly do to offer religious beliefs as reasons for being moral, if the only reason for believing them is that they are necessary for being moral.

(C), which says that most people will perform their duties adequately only if they hold religious beliefs, is much more doubtful. It would be very difficult to find in history or to create in an experiment situations so controlled or so structured as to show it to be true. Trueblood and others have averred that the events and experiences of the twentieth century constitute "a great body of evidence . . . of the moral decay that follows a loss of theistic conviction."<sup>7</sup>

<sup>7</sup>D. E. Trueblood, *The Predicament of Modern Man* (New York: Harper Bros., 1944), pp. 56-57.

Presumably they are thinking either that the conduct of Nazi Germany and of Communist Russia is a consequence of a loss of theistic conviction in those countries, or that there is moral decay on our own side which is due to such a loss. Let us suppose that there has been, on whatever side, a widespread decline of religious faith and also a widespread moral decay. This would by no means establish that the former was the cause of the latter. There are other developments in our century which might have caused whatever change in conduct there has been besides a decline in religious faith, e.g., nationalism, fear, etc. It may even be that something more basic is the cause of both the religious and the moral change. It can, in fact, be maintained with some plausibility that the present upsurge of religiosity is itself due to some pervasive economic, political, or social phenomenon of our time, and, if this is the case, it may be that some such phenomenon, and not the increase or decrease of religion as such, is what determines our moral behavior and thinking.

But suppose that (c) is true—that the average individual will be even adequately moral only if he has religious convictions. What follows? Even then all that follows is that a public or religiously neutral moral education must be supplemented, not that it should go out of business. And, once more, this need for religious supplementation follows only if religion is true on other grounds. For the only alternative would be to say that religion should be taught as a prop for morality even though it is not true. But to say this is to condone myth-making and propaganda; and, moreover, it hardly seems to comport with the spirit of religion itself.

(3) So far we have dealt, respectively, with the claims that morality is *historically* and *psychologically* dependent on religion. But the crucial issue is whether morality is *logically* dependent on religion, that is, whether theological premises are required to *justify* statements about our moral duties—not only about specifically religious duties but also about others, not only about so-called duties to God but also about duties to our fellow-man. I made this distinction between *justifying* a moral judgment and *motivating* people to act on it earlier when I was talking about teaching reasons as well as moral rules, but must say a little more about it here, for the distinction is often neglected by religious as well as non-religious moralists. Take, for instance, the religious rule which many regard as a moral duty, "We ought to worship God." Suppose A asserts it and B asks, "Why?" Then A may give an answer which is intended to *convince* B on intellectual grounds that he has a moral obligation to worship God, or he may give one which is calculated only to *motivate* B to worship God. He does the latter if he replies that the Lord is a jealous God and will not hold him guiltless who has other gods before Him, but shows mercy unto thousands that love Him and keep His commandments. But he does the former if he reasons as follows:

We ought to be grateful to those who have been good to us.

God has been good to us.

Therefore we ought to be grateful to Him.

But being grateful to Him entails worshipping Him.

Therefore we ought to worship Him.

Here A is offering B a moral justification for his rule, not just a motive for obeying it.

Moreover, A's argument has at least one theological premise, viz., "God has been good to us," and so, in his reasoning, the duty to worship God is logically dependent on a religious proposition. I think we may say that the same thing is true of all specifically religious obligations—if they are duties at all, they logically presuppose at least one religious premise for their justification. Now I am not concerned to ask whether there are such duties, but whether the same thing is true of *all* of our moral obligations. Do they *all logically* presuppose some theological premise or other? Can one never *justify* a rule of duty without using such a premise? I see no reason for thinking so. It seems to me that I do give a moral justification of, say, the rule to keep promises, if I show that promise-keeping is necessary for the stability and well-being of society in the world. Of course, someone may still ask me why he should be concerned about the well-being of society, but then he seems to have switched the question from that of justification to that of motivation.

In fact, it cannot be true that *all* moral principles depend *logically* on a prior theological premise. Look at A's argument again. It does rest on a theological premise, as we saw. Its very first premise, however, is not a theological proposition, but a *moral* one, namely, "We ought to be grateful to those who have been good to us." And any argument to *justify* any moral rule must have a similar structure, i.e., it must begin with a basic moral principle. Else one cannot draw a moral conclusion. It follows that justifying arguments rest ultimately, at least in part, on moral principles which do *not* depend *logically* on theological or other premises. One of these ultimate moral premises may even be the rule that we ought to do what God commands; but this is a moral principle and not a theological proposition, and it does not follow logically from any theological proposition.<sup>8</sup> One may, of course, ask even in the case of such an ultimate moral principle, "Why should I do what it enjoins?" but then one is asking, not for a moral argument, but for motivation or some kind of non-moral argument. And, as we saw before, the answer need not involve any religious considerations.

(4) At this point, it might be contended that the ultimate principles of morality must be matters of divine revelation, if what has just been said is true. Then it might be said that morality is at least *epistemologically* de-

<sup>8</sup> Of course, one might claim that the ultimate moral premise is a definition or true by definition, but then one must establish the acceptability of one's definition and one cannot do this simply by deducing it logically from theology.

pendent on religion or rather on a faith that certain principles have been divinely revealed. But, if by this is meant that some such special revelation as Moses is supposed to have received on Mt. Sinai is required, the view can hardly be sustained. As St. Paul said, even "the Gentiles which have not the [revealed] law—are a law unto themselves," having "the [moral] law written in their hearts, their consciences also bearing witness."<sup>9</sup>

There is a different kind of "revelation" which is sometimes said to be necessary as a basis for morality, namely, the "realization" of other people as persons whose lives have the same "inner significance" that ours have. Josiah Royce describes this realization of our neighbor, which he calls "the moral insight," most vividly, and William James dramatizes it even more in the essay "On a Certain Blindness in Human Beings," where he speaks of this "higher vision" which pierces the "great cloudbank of ancestral blindness weighing down upon us" and "makes an epoch in [the] history" of the person to whom it comes. And he calls it a "religious insight." Now, I am inclined to agree that a morality without this insight is in some way truncated, as Henri Bergson holds.<sup>10</sup> But I find it misleading to call it a "religious" rather than a "moral" insight, for, while it may involve some kind of regeneration on the part of one who has it, it is not clear that it presupposes any belief of a specifically religious or theological nature, e.g., the belief that there is a God or that human beings have immortal souls. In any case, however, there seem to be forms of morality like F. H. Bradley's morality of "my station and its duties" or Bergson's "closed morality" which do not rest on such a "higher vision of an inner significance," and even if these moralities are truncated, they may be an important part of our moral education.

## V

Well, much more might be said about the thesis of the indispensability of religion to morality. I might have pointed out that if one rests morality on religion, one encourages moral scepticism in those who find religion uncertain or false, e.g., the Sartrian existentialists. I might have shown that, if religious ideas have influenced moral ones, so have moral ideas influenced religious conceptions, as is illustrated by Plato's critique of Greek theology in the *Republic*. I might even have mentioned Matthew Arnold's view that religion is "morality touched by emotion," which John Dewey restated in *A Common Faith*. But it is not my intention to denigrate religion in any way, even if I have not been willing in this discussion to take its truth for granted. It may be that religion is necessary for certain reaches of both morality and the good life. This I have not been concerned to dispute. Nor have I been

<sup>9</sup> Romans 2:14. See also Reinhold Niebuhr's criticism of Karl Barth in *The Nature and Destiny of Man* (New York: Charles Scribner's Sons, 1941). II, pp. 254-256.

<sup>10</sup> See the article referred to in Note 5, p. 312.

trying to justify the existence of public education. What I have been arguing is this: (1) that public education, if it exists at all, should be concerned to do what it can to promote the good and the moral life, (2) that, because it is publicly-supported, it cannot seek to inculcate any religious belief as part of its endeavor to advance the good or the moral life, and (3) that this fact does not mean that it must go out of business, since there are important values, principles, and virtues to which religion is not indispensable, logically, psychologically, or otherwise.

All this it is important to say now, when there is such strong pressure on the state-supported schools to do something more "positive" about religion. For one of the main grounds on which this pressure rests is the conviction that religious belief and experience are indispensable to both the good and the moral life whose promotion must be the concern of the state and its agencies—a conviction which is usually vaguely-formulated and inadequately supported, but which many feel so deeply that they are ready to give up the neutrality of the public schools and to jeopardize the freedom of thought which it was designed to protect. The thought behind this paper is that this conviction is only partly true at best, that the public schools may remain non-malevolently neutral and yet have an important sphere of operation relative to morality and the good life, and that, if and insofar as religion is required for certain dimensions of happiness and virtue, these schools should rather be supplemented than subverted.

# Education, Knowledge, and the Problem of Existence

*"Each of my students is freedom embodied in a living person. Before him lies a destiny that he and no one else can ever fulfill."*

*Within this framework of an existential conception of man, Professor Kneller argues that the present focus upon "group-adjustment" in our schools should be re-directed toward individual self-fulfillment. In the author's view, the teacher can lead each student toward a sharpened awareness of his own reality and can instill a sense of the uniqueness and mystery of life in his students by communing with them "through the medium of knowledge."*

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I SPEAK TO YOU as would an existentialist, and the heart of my doctrine is a view of man.

I advance a conception of man and education that may sound strange, for it would be hard to find in the textbooks of this country. To do so, I must depart from the mode of address to which you are accustomed at these meetings. May I ask you not to judge me by the usual philosophers' categories, which in any case I shall be forced to deny. For I want you to join me in an existential dialogue over the two factors that are the very basis of education, the student and his knowledge. Let us for a moment rub some color into our educational thinking and see what we can create.

When I look at man—when I regard each of you in my audience—I see that what is fundamental in you as persons is not an "essence" but a "condition." You have your own unique position in space and time, your own past, your own environment, your world of other men, your own death. Having no essence, no nature to which you must conform, each one of you is free and irreplaceable. When you choose, does *man* choose or do *you*? When you die, who dies—is it man or you? You say you are free. If you are, then you exist beyond all systems. Wall you in with categories, and you will elude them. Jacket you in principles, you will not be there. You are "in the world," you live in determinate situations. But in all of them you are free.

Here, then, is the root of your "anxiety"—the terrible responsibility of a freedom which, however often you disown, you can never escape. You may dedicate your life to a job or to your family, to a religion or to your country. The shackles you forge are your own creation. At any time you can strike them off. For while it is a characteristic of objects to exist, only you can become. You are a self to be made, a self that is revealed, not in what you are (for existentially you are nothing), but in what you do.

And what of myself? How does this view of man affect me, the teacher, and my conception of education? To begin, it rules out three conventional notions: that education is primarily an agency of society, set up to perpetuate a cultural heritage; that it is a pipeline of perennial truths; and that it is a means for adjusting the young to life in a democratic community. In place of these, let education exist for the individual. Let it teach him to live as his own nature bids him, spontaneously and authentically.

"Living spontaneously?" "Behaving authentically?" We have heard these clichés before, you say. They grow stale on the lips of every philosopher of education. Do we not all teach individual freedom? Isn't progressive education dedicated to this end? Yes. But for me freedom, spontaneity, and authenticity must come alive. To live authentically is to live by my own decisions, carve my own way through fortune and adversity, pit myself against the world or make it my ally, in the face of any categorical pressure. Above all, it is to refuse to drift with the human tide that washes the streets and offices of our cities, to refuse to join men and women who have surrendered

their initiative to their job, or to the search for social success or popular acceptance of proper conduct, or to a life of ease, or to the false security of an ideology. I cannot follow men and women who have allowed their lives to be shaped by anyone or anything but themselves. These, you say, are normal people. And perhaps they are. But only in the eyes of their judges, who themselves say they are normal people.

Each of my students is freedom embodied in a living person. Before him lies a destiny that he and no one else can ever fulfill. By this I do not mean that he will necessarily choose a worthy career, marry a beautiful woman, and dwell in a lovely home, like so many of his peers. I mean that before him there stretches a sequence of events that he and only he will ever experience. They are *his* events, forming *his* life. They have never happened before, and they will never occur again. What they will be he can either choose himself or he can allow others to choose for him. Like Marcel I believe that "Human beings are not . . . closed systems. They may have walked into the labyrinth through their own folly . . . but they are always, ultimately, capable of walking out again."<sup>1</sup> As an educator I scorn any system that would make me mold my pupil to a particular image of man, whether God-fearing, patriotic, or socially-adjusted. Such patterns barricade him within a character he never chose.

When I state that freedom implies *becoming*, I imply that with each choice my student makes he "projects" himself into the future. He "ex-lists," as it were, beyond the present moment in order to summon into being that which is as yet mere possibility. He is, then, what he himself chooses. With Sartre I say, "It is in their undertakings that men and the world reveal themselves."<sup>2</sup> The student is the sum of his own decisions, as I am myself. He is *homo viator*, the self forever in transit.

For many years I have pondered these thoughts and sought to act on them. Yet I have never ceased to wonder that I could find so little in the work of psychologists that has explored personality from this position. Of course there is Sartre's treatise. Still, one cannot thrive on a mere refutation of Freud. But in recent years the climate has changed, for I now find psychologists increasingly aware that man is more than the product of his unconscious or his environment. Gordon Allport is now my audience, and I am his. In his daring work, *Becoming*, he roundly declares that man is a free agent, an existential self. Victor Frankl assures me that human existence can neither be reduced to a system, nor deduced from it.<sup>3</sup> At Harvard tests derived from existentialist propositions are now being formulated.

In California Walcott Beatty has announced that educational psychology

<sup>1</sup> Gabriel Marcel, *Three Plays* (London: Secker & Warburg, 1952), p. 8.

<sup>2</sup> Jean-Paul Sartre, *What Is Literature?* trans. Bernard Frechtman (New York: Philosophical Library, 1949), p. 239.

<sup>3</sup> V. E. Frankl, *The Doctor and the Soul* (New York: Knopf, 1955), p. 169.

is becoming increasingly sensitive to the facts of individual uniqueness.<sup>4</sup> It is true, we have for a long time been aware of individual differences, but we have concentrated our efforts on minimizing them, so as to help adjust the individual to the group. This we now know to be a lost cause, for studies in many fields lead us to the same conclusion, that the extent of these differences is far greater than we thought. Much injustice has been done in the process of ironing them out and many a personality violated. So effectively have we done our work that children tend more than ever to fear or ridicule differences in others and far too many feel ashamed when they differ from group norms. Did I say the cause is lost? I mean it was doomed to failure from the very start.

This fetish for reducing individual differences arose in part out of unexamined assumptions about the biological nature of man. It has been said that we are all alike biologically. But recent research proves otherwise. Interpersonal differences in such factors as thyroid output, weight of body organs, the rate and pumping capacity of the heart are so immense that even in biology the word "normal" has become suspect. Biologist Roger Williams tells me that human nature cannot possibly make sense unless we begin with individuality.<sup>5</sup> From studies in perception at Dartmouth by Adelbert Ames I know that what we see depends upon what we are prepared to see, and in no two people is this "preparedness" the same.<sup>6</sup> Hastorf and Cantril of Princeton, studying student reactions after a football game, have concluded that there is no such thing as a "game out there."<sup>7</sup> There is no objective game, which is seen alike by all, only a set of events which each person interprets in his own fashion. I perceive reality in terms of its significance for my own life.

What does psychology tell me about personality? From perceptual or self-concept theories, propounded by Rogers, Kelly, Snygg, and Combs, I learn that, if my pupil feels I am a terrible teacher, it makes little difference that you or his parents think I am not. I am, to my pupil, what he sees and feels; and he will continue to think and act accordingly, until his perceptions change and so alter his judgment.

Are you surprised that so many of your students fail to understand you—even at the third attempt? Does not the reason lie in the fact that what you say has so little connection with their own personal world?

Behaviorists tell me that human behavior originates in the desire to satisfy

<sup>4</sup> Walcott Beatty, "Significant Research and Theory in Human Development," *Minutes and Proceedings of the Santa Barbara Conference*, California Council on Teacher Education, (April 2, 1959), pp. 47-52.

<sup>5</sup> Roger J. Williams, "Chemical Anthropology—An Open Door," *American Scientist*, 46 (March, 1958), 1-23.

<sup>6</sup> Adelbert Ames, *An Interpretative Manual: The Nature of Our Perceptions, Prehensions and Behavior*. (Princeton: University Press, 1955.)

<sup>7</sup> A. H. Hastorf and H. Cantril, "They Saw a Game: A Case Study," *Journal of Abnormal and Social Psychology*, XLIX, 1 (January, 1954), 129-134.

certain fixed needs. It is the product of a mechanical adjustment of these needs to the requirements of an outside environment. But I say that all such needs can be summarized in one need, namely to become an adequate and striving self. This need is neither fixed in scope nor mechanical in its operation. All our behavior is directed toward realizing ourselves. I can assume that my student behaves so as to maintain and enhance his own self. Thus I am led to the fundamental question which every teacher must ask. What conception does the individual have of himself and of the world, which makes his behavior seem sensible *to him*?

Unfortunately, perceptual theorists are few in number in this country and mechanistic behaviorism in one form or another is still the dominant fashion. It is true we have existential analysts in psychology, but it is largely to the Europeans that we must look. How strange it is that in a society founded on rugged individualism and personal freedom we should have succumbed to group-inspired, outer-directed psychologies! How odd it is that we should have to look so much to Europe for existential psychology and the phenomenological method! For I say with Martin Buber that the individual is a subject and not an object among other objects of study:

"This human being is not *He* or *She*, bounded from every other *He* and *She*, a specific point in space and time within the net of the world; nor is *He* a nature able to be experienced and described, a loose bundle of named qualities . . . This does not mean that nothing exists except Himself. But all else lives in *His* light . . . Just as the melody is not made up of notes nor the verse of words nor the statue of lines, but they must be tugged and dragged till their unity has been scattered into these many pieces, so with the man to whom I say *Thou*. I can take out from him the colour of his hair, or of his speech, or of his goodness. I must continually do this. But each time I do it he ceases to be *Thou*."<sup>8</sup>

It follows that I must cease to regard my pupil as being of such and such a nature or as possessing definable characteristics, for, if he is what he chooses to be, then any choice he makes can change what he has been. He is not, as my Freudian colleagues would have me believe, conditioned by his past. He is oriented to the future, into which he thrusts his every choice in life.

So far I have considered the individual in terms of himself alone. Let us see him now in his relationship to others—to his friends, his business associates, or his family. Must my teaching lead to a Sartrean solipsism—to the heroic individual, stripped of all personal ties, who carves his undeviating path through a world bent on his enslavement? On the contrary, it leads to the very opposite; for, in my view, freedom implies not egoism but communion. It is in isolation that the self atrophies. The egoist is wound ever

<sup>8</sup> Martin Buber, *I and Thou*. Trans. by Ronald Gregor Smith (Edinburgh: T. & T. Clark, 1950), p. 8.

more tightly within himself like a crushed spring. Instead of dominating the world in which he has chosen to live, he is trapped by it. "Egoism," says Berdyaev, "destroys personality":

"Egoistic self-containment and concentration upon the self, and the inability to issue forth from the self is original sin, which prevents the realization of the full life of the personality and hinders its strength from becoming effective . . . Personality presupposes a going out from the self to another and to others. It lacks air and is suffocated when left shut up in itself."<sup>9</sup>

Freedom, being open and dynamic, longs for other centers of freedom, so as to reflect them within itself and be reflected by them. In communion with one another we realize our true possibilities.

But do not equate this communion with the garrulous, sweaty familiarity of the crowd. It belongs to the intimacy we attain with another person, called by Buber "inclusion" and Marcel "presence." In it, you and I meet as independent selves to share a single experience, which is undergone by each of us both from his point of view and that of the other. Such communion is the highest form of love, since it transmutes but does not destroy me. In it I preserve my uniqueness, neither absorbing you within myself nor merging myself in you. It is not the sacrifice of personality in a blaze of passion, but a dialogue in which I experience what passes in your mind and heart, as you do what passes in mine.

"The inner growth of the self is not accomplished, as people like to suppose today, in man's relation to himself, but . . . in the making present of another self and in the knowledge that one is made present in his own self by the other."<sup>10</sup>

Such a conception bypasses education's old antinomy of "individualism" versus "group-adjustment." The first sterilizes freedom before it has developed power to create. But does it follow that I should go to the other extreme and become a gregarious follower of crowds? By no means, for if I deal with people in the mass, how can I meet them as individuals? Gregariousness is certainly no fault; yet in itself it remains incomplete, a potential waiting-to-be-used rather than a realized virtue. In the social round, and at our jobs, assuming the style and gestures for which convention calls, we but touch the surface of other people's lives. I must channel my responsiveness into relationships of true communion.

Our schools today do not foster a real individualism; their efforts are geared too firmly to the needs of the group. Happily that dedication to a

<sup>9</sup> Nicolas Berdyaev, *Slavery and Freedom* (New York: Scribners, 1944), p. 42.

<sup>10</sup> Martin Buber, "Distance and Relation," trans. Ronald Gregor Smith, *The Hibbert Journal*, XLIX (January, 1951), 112 f.

ruthless spirit of rugged competition which once inspired them is now a thing of the past. It was wrong, in that it pitted child against child in a striving for external honors. It failed to open the way to genuine self-development.

On the other hand, we should be equally foolish to embrace the kind of "cooperation" that for so many years progressivism has hawked about this land. Here the student cooperates in the name of efficiency, because things "get done" better this way—or so we are told. But in making efficiency the goal of group endeavor, progressivism subordinates the development of the child's possibilities to the attainment of a communal goal. I have no time for groups of this kind, whose capacity for good pales into insignificance beside the harm they do. Their brittle surface familiarity prevents the attainment of true intimacy, and an insidious "togetherness" conceals the absence of genuine fellowship.

By the same token I must admit that as a teacher I cannot expect to get along with every single student. I know that Buber wants me to play no favorites among my pupils; I must treat them all alike, for they are all God's children. But I cannot authentically do that. I cannot love everybody, nor even feign affection. If a teacher has no favorites among his pupils and loves them all equally well, then he really loves none of them. On this point I agree with Heidegger and Jaspers. I am so made that there is only a limited amount of love that I can bestow on others. I can have but a few friendships that go really deep.

And if you say I do not "belong" in the public schools of today, I can only say that perhaps you are right. But who will persuade me that today's schools have an absolute right to their existence? As we know them, they are only a hundred years old. What man has created he can also replace. I am not convinced that in itself the school is necessarily a good thing. It is at best a benevolent, well-meaning concentration camp. It denies in its actual makeup the very emancipation and enfranchisement of youth that it is established to cherish. There is only one thing that counts in the education of men, and that is the intimate relation of student and teacher. When I am ill and need to get well, I see my doctor. When I am ignorant and need to learn, I see my teacher. If I need companions to stimulate my mind, I seek them myself. I do not want them forced upon me. I have no time to pursue this vital issue further, but will ask one passing question. Is there any coincidence between the rising wave of juvenile rebellion and the ever-increasing fatness of public schooling? Deny, if you can, the dreadful similarity between the mass education of children in a school and the mass production of goods in a factory. To such an extent have we accepted institutionalized education that the work of the individual is no longer wanted. Indeed, this in itself is an understatement. It is even illegal for me to educate my own children.

In my view, education is not a social institution but a meeting of persons—one in which the child encounters my personality in the act of learning

and through me the world which I embody. I liberate his capacities, setting him on the road to "authenticity," while he for his part realizes himself through encountering in me the knowledge that I bring to life.

Clearly the purpose of learning is nothing less than the fulfillment of ourselves. Why do I write of this now? Not, surely, to simply transmit an opinion on the state of American education, but rather to tap a potentiality in you which will lead to your greater self-fulfillment as colleagues in our chosen profession.

Considered thus as a means to personal fulfillment, knowledge ceases to be mere data seen in the same light by all, and becomes instead a highly personal possession, intimately reflecting the traits of its possessor. Each one of you bears within himself a lifetime's experience that no one else can ever share. It consists of numberless events, some of which might seem important, but many also which would appear trivial to any outsider. Yet they have condensed for you into embers of passion and significance—odd, seemingly disconnected events, a short seen at sunset, a wind in the pines, some lines of a poem, a remark heard in the street, a casual love affair. Out of these myriad incidents you are compounded. Hence to any fresh event, to any item of new knowledge, you bring a wealth of experience that is yours alone. Since no two of you have had the same experiences, no two of you will ever interpret the world exactly alike. Each of you will have a different impression of what I have written here. Some will disagree violently about what it means. Others will find that in some respects their interpretations concur. But this apparent concurrence will itself mask differences of view and emphasis that not even prolonged discussion will dispel.

Good teaching is the personification of knowledge, so that what takes place is no longer the mere projection of information from one mind into another but a meeting of persons through the medium of knowledge. And if knowledge is to play its true role in your development as a person, it must entice and attract you. No longer flat and conventional, alien data to an unwilling mind, it is transfigured in my presence, reverberating from my own life into the lives of each of my students.

This brings me finally to a subject which concerns all educators, philosophy. What does the philosophic act involve for you? What sort of philosophy do you convey to your students? Rather than hand over the finished product of a discipline, I seek to encourage the habit of philosophizing. I show them that the exploration of art, music, poetry, history, science, in fact, of all knowledge, leads inevitably to a philosophic problem, which is the nature of the intersubjective relationship between being and reality.

What do I mean by "being"? What is the nature of my reality? Being is what is left when we know everything else. It is that mysterious something that resists definition and remains after man has stripped reality of everything he thinks he has successfully described. It is neither thing, nor substance, nor category, nor definable entity, but rather, as Marcel has said, a

mystery that must be recognized or encountered by each of us personally.

I agree that there is more to being than can ever be known. But mystery is not the same as the unknown.<sup>11</sup> What is unknown can eventually be known. What is mysterious can never be known. It is something with which each one of us must make his unique personal connection. It eludes all generalizations. It cannot be solved as a problem is solved. It is there to remind us that no problem is finally solved, except for myself, as I have the courage to *partake* of being . . . to play a part in it.

My approach is of course phenomenological. This means I describe in detail the appearance of things and events as they present themselves to my consciousness; I interpret them in their subjective reality, after the manner of the poet or novelist, without being bound by logical analysis or scientific empiricism. The latter I regard as means, not ends, by which corporeal existence may be explained (as contrasted with personal existence). Logical positivism may explain the laws of physics. I regard scientific empiricism as a means to the understanding of the structure of rocks and atoms, and the behavior of rats, lice, and guinea pigs. But I agree with Berdyaev that in the long run such "objectivity" can only cool the fire of human individuality. Do you disagree? Fine. But you must fire your students with an enthusiasm and commitment which arise from your own philosophizing. This may not be easy if your philosophy is best suited to explaining the life and behavior of the lower animals.

In communing with my student I help him to discover himself within his situation in the world, within his family, his background and his country—none of which he has chosen. He can only fulfill himself in his own human situation. Freedom means freedom *in the face of* human instincts, inherited disposition, and environment.

As a teacher of philosophy I seek to help my student to see reality in a new way, not necessarily the reality of the remote and extreme situations of human experience, but more frequently that of the ordinary and the familiar. Here I am close to Plato as he reflected his own teacher, Socrates. For Plato lived his philosophy, engaging his hearers as "one flame enkindling another" (Marcel). Here I became "permeable," as it were, so that through me my student gets from me some glimmer of existential truth. I teach that the greatest service of the philosophic spirit is constantly to increase our awareness of a special and personal reality that surrounds us on all sides. To philosophize authentically is to release ourselves from the schemes and systems of those who yearn for the security of an external order. But is real order necessarily external?

Upon all things there lies the spell of the inexplicable, "the mystery of being." Born we know not why, dying into an unknown, we are travelers in a world whose very existence seems unnecessary. Look into the night sky;

<sup>11</sup> Gabriel Marcel, *The Philosophy of Existence* (New York: Philosophical Library, 1949), p. 5 especially.

even the vast spokes of the universe have no reason for being there. Heidegger's question remains unanswered: "Why is there anything rather than nothing?" This feeling—that we are part of an envelope of infinite being—presses in upon us at times with uncanny compulsion. We sense it above all in nature, that nature from which we and our children have been estranged by cities clogged with machinery. In the hills, in the forests, in the desert, in the ocean it awaits us. Or in much smaller things, like the heart of a flower, or the grace of an animal unaware that it is watched, or the almost unbearable descent of a single leaf that, looped upon the wind, breathes the very sadness of autumn. How precisely the scientist explains the mysterious molecular theory underlying the crystalline structure of snow! But for the poet—and this I teach my students—new-fallen snow is ever simply but mysteriously white, and so soft you can walk through it without making a sound.

# A Critique of "Practice in Teaching"

*In the following article Messrs. Oliver and Shaver strongly challenge many of the assumptions underlying the arguments made by Mr. Shaplin in his article, "Practice in Teaching," published in the Winter 1961 issue of the Harvard Educational Review. Their main claim is: "not proven," and they urge more caution in making claims for the utility of practice in teacher training.*

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## I. INTRODUCTION

AN ARTICLE WAS RECENTLY PUBLISHED in the *Harvard Educational Review* entitled "Practice in Teaching," by Judson T. Shaplin,<sup>1</sup> which, we feel, de-

<sup>1</sup> Judson T. Shaplin, "Practice in Teaching," *Harvard Educational Review*, XXXI (Winter, 1961), pp. 33-59.

serves extensive comment, mainly because of its attempts to justify an educational practice which, in our present state of knowledge, cannot be defended on objective grounds. The article particularly requires attention because it masks its lack of objective evidence with an imprecision in language which makes the speculative basis of its case for practice in teaching all the more obscure. In short, we feel the article is deceptively naive while appearing on the surface to be, in Mr. Shaplin's words, complex and sophisticated. To those not directly connected with teacher education, it may well be persuasive. We therefore feel that an effort should be made to raise questions which the article in its lack of depth fails to do.

## II. WHAT IS THE EVIDENTIAL BASIS FOR SHAPLIN'S ASSUMPTIONS<sup>2</sup> ABOUT EFFECTIVE TEACHING AND EFFECTIVE SUPERVISION IN PRACTICE TEACHING?

### a. *Is it realistic to assume that existing practice teaching programs will have a permanent or substantial effect upon the behavior of the teacher?*

Shaplin explicitly assumes that "Teachers, through practice, can learn to analyze, criticize, and control their own teaching behavior."<sup>3</sup> Although he does not explicitly define what behaviors he has in mind, we do note that he mentions, as possibly inappropriate to teaching, behaviors which reflect "basic attitudes and orientations toward people . . ." developed in the context of "a variety of roles—as members of a family, as students, in voluntary associations, in friendship relationships."<sup>4</sup> As examples of such behaviors, he suggests that

... a young man raised in an autocratic family atmosphere may automatically assume an autocratic stance in the classroom, or if he is in rebellion against authority, he may try to remove all symbols of authority from his role as a teacher. Others may carry excessively permissive or friendly attitudes into teaching.<sup>5</sup>

It is difficult for us to accept the assumption that practice teaching under supervision will have a substantial impact upon such basic roles developed early in life. The nature of the authoritarian syndrome discussed in works such as *The Authoritarian Personality*<sup>6</sup> and *The Nature of Prejudice*<sup>7</sup> would

<sup>2</sup> Shaplin's presentation of explicit "assumptions" seems to presume that they require no defense. It is our understanding that assumptions can be made explicitly either when the facts supporting them are so obvious or self-evident as to make a defense unnecessary, or when it is necessary to assume certain conditions which defy observation in order to test a hypothesis based on these conditions. The word "assumption" is used in neither context in Shaplin's article. We are using the word to include both explicit and implicit assumptions.

<sup>3</sup> Shaplin, *op. cit.*, p. 36.

<sup>4</sup> *Ibid.*, p. 34.

<sup>5</sup> *Ibid.*, pp. 34-35.

<sup>6</sup> T. W. Adorno et al., *The Authoritarian Personality* (New York: Harper & Brothers, 1950).

<sup>7</sup> G. W. Allport, *The Nature of Prejudice* (Garden City, New York: Doubleday & Company, 1954).

tend to support our position. The evidence is that such behavior is changed only by traumatic experience or long-term psychotherapy. As a matter of fact, Mr. Shaplin himself considers this possibility.

Practice provides an opportunity to analyze the characteristic defenses which a teacher employs in the face of stress, to test the appropriateness of these defenses, and to develop rational, controlled behavior to handle the stress conditions. In many ways the situation is similar to the process of psychotherapy, though with less intent to change the basic personality: the examination of the appropriateness of reactions and defenses, the inquiry into why things are this way, the achievement of emotional insight, and the search for new adaptive behavior congenial to the emotional growth that takes place.<sup>8</sup>

Although there may be "less intent to change the basic personality," how else can such "basic attitudes and orientations" be modified?

The question might be raised: Can the supervisor of the experience called "practice in teaching" provide such therapy? We think not, at least under any existing program with which we are familiar. In the Harvard teacher education program, for example, the teaching performance of the "apprentice" is observed from four to seven times, each visit being followed by criticism and analysis. This occurs over a period of from three to seven months. We wonder whether one therapeutic session per month is enough to change a person's "basic attitudes and orientations"? Some obvious questions can be raised by contrasting the intensity of this "treatment" with that of a person under more conventional psychotherapy, even when one grants that his problems may be more severe. If Shaplin did not have the Harvard program in mind, but rather an intensive, closely supervised experience in practice teaching, he might well have faced more realistically the problems of providing such an experience.

One might hypothesize, despite Shaplin's assertion that "*Much of the habitual behavior which individuals have developed in other contexts is inappropriate for the teaching situation,*"<sup>9</sup> that the student who responds best to the practice teaching experience and who, in fact, becomes a "good" teacher simply has as part of his make-up little inappropriate behavior in the first place. Interesting results might be obtained by comparing, after perhaps one or two years of experience, those teachers who have had no practice teaching experience with teachers who have gone through programs involving practice. In this connection it might be suggested that many teachers in private schools, colleges, and universities who have had no practice teaching would probably compare quite favorably with the products of teacher training programs. The need for research evidence on such points is indicated by Carroll's conclusion:

<sup>8</sup> Shaplin, *op. cit.*, p. 35.

<sup>9</sup> *Ibid.*, p. 34.

We find neglect also in the related matter of teacher education—it is virtually impossible to find sound studies of either what changes can be made to occur in student teachers through professional education or of what effects these changes may bring when these teachers enter service.<sup>10</sup>

Regardless of one's speculations on the relative excellence of "trained" versus "untrained" experienced teachers, it is clear that little systematic evidence has been accumulated on the subject, a point which any responsible writer should point out.

b. *Is our knowledge about supervision sufficiently developed that one can make reliable judgments about the effect of specific supervisory practices on the behavior of practice teachers?*

Shaplin states that "*The highly specialized nature of supervision, and the skills and knowledge required, are little understood, or are disregarded by the schools.*"<sup>11</sup> We would ask: What knowledge is there in the field of supervision which is so disregarded by the schools? Morris Cogan, Director of Secondary Apprenticeship Teaching at Harvard, has summarized the state of our present knowledge about supervision as follows:

Both the problems and the importance . . . [of studying the process of supervision in a more systematic way] derive from the fact that there is neither a developed body of theory and research nor a systematic body of clinical practice that will help supervisors to improve the performance of the teacher in the classroom.<sup>12</sup>

Cogan also points out:

One of the reasons for such meagre accomplishment is simply that the practices of clinical supervision have been only poorly developed. For example, supervisors have not been able to set up any widely accepted and continuously refined strategies and techniques for observing the teacher, making a convincing analysis of his performance, and using this analysis as a basis for the improvement of the teacher's classroom performance.<sup>13</sup>

Cogan's analysis of the literature certainly leads one to ask: If there is so little work on the development of a conceptual framework from which to supervise teaching, how can there exist a "highly specialized" procedure for

<sup>10</sup> J. B. Carroll, *Neglected Areas in Educational Research*, A paper presented at the meetings of the American Educational Research Association, Chicago, Illinois, February 23, 1954. Also in *Phi Delta Kappan* (May, 1961).

<sup>11</sup> Shaplin, *op. cit.*, p. 53.

<sup>12</sup> Quoted by permission of M. L. Cogan from an unpublished document entitled, *Clinical Supervision for the Improvement of Teaching*, p. 2.

<sup>13</sup> *Ibid.*, p. 5.

supervising practice teachers? Or more specifically, to what extent are supervisors' analyses of the teaching act objective and valid? A classic study reported by Barr in 1929<sup>14</sup> sheds some light on this problem. Barr had sixty supervisors simultaneously observe the same person teaching for two thirty minute periods. The supervisors were asked to rate the teacher on a ten-point scale on twelve items, such as: "Teacher's skill in asking questions"; "evidence of teacher preparation"; etc. The supervisors were also asked to give the teacher a general rating, again on a ten-point scale. Barr concludes:

While the writer expected that they [the supervisors] would not agree, he did not expect such marked disagreement. In fourteen of the twenty-six ratings these supervisors spread their ratings over the entire ten-point scale; in eleven instances their ratings covered nine points, and in only one instance did they show any agreement whatsoever. In rating motivation, for example, twenty supervisors . . . said that the motivation was superior, and twenty-one supervisors said that it was very poor. In general merit thirteen of these supervisors rated this teacher as superior . . . , but thirteen other supervisors rated this same teacher as very poor. These last named supervisors would doubtless have discharged this teacher at the end of the year if she were employed under their direction; the first thirteen supervisors would doubtless have reemployed the teacher with a promotion and increase in salary. After the demonstration was over, one group of supervisors commented upon the very poor quality of teaching exhibited; in another group a superintendent of schools made the remark that he wished he might employ this teacher for the coming school year. The point is that conventional supervision is highly subjective.<sup>15</sup>

More recently Carroll concluded:

I would underline the necessity of using pupil change as a criterion of teacher effectiveness, for after reviewing so many studies which have resorted to the regressive maneuver of utilizing only subjective ratings of teachers I am convinced that we might just as well scrap all such ratings.<sup>16</sup>

Studies such as those by Jayne,<sup>17</sup> LaDuke,<sup>18</sup> and Rostker<sup>19</sup> also bear out the conclusions of Barr and Carroll about the inadequacy of supervisor's ratings as estimates of teacher effectiveness.

<sup>14</sup> A. S. Barr, *Characteristic Differences in the Teaching Performance of Good and Poor Teachers of the Social Studies*, (Bloomington, Illinois: Public School Publishing Co., 1929).

<sup>15</sup> *Ibid.*, pp. 6-8.

<sup>16</sup> Carroll, *op. cit.*, p. 11.

<sup>17</sup> C. D. Jayne, "A Study of Relationships Between Teaching Procedures and Education Outcomes," *Journal of Experimental Education*, XIV (1945), pp. 101-134.

<sup>18</sup> C. V. LaDuke, "The Measurement of Teaching Ability," *Journal of Experimental Education*, XIV (1945), pp. 75-100.

<sup>19</sup> L. E. Rostker, "The Measurement of Teaching Ability," *Journal of Experimental Education*, XIV, (1945), pp. 6-51.

It seems obvious to us that one must assume that a supervisor can make a valid analysis and evaluation of a practice teacher's performance before we can place much confidence in the process of supervision. From the evidence presented, we judge this assumption to be clearly suspect.

c. *What is the state of objective knowledge upon which teachers can base curricular decisions?*<sup>20</sup>

If serious questions can be raised about the supervision which constitutes such an important part of the practice teaching experience, even more questionable is Shaplin's evaluation of specific teaching decisions which he would like his practice teachers to practice making. We refer to what he terms, "*The 'psychologizing of the curriculum'; . . . the application of methods and techniques appropriate for the objectives and content of instruction and for the characteristics of the students specifically involved.*"<sup>21</sup>

Quite logically, he asserts that the teacher's objectives are to be the basis for the selection of specific teaching procedures. But on what basis can the teacher predict relationships between techniques and objectives?

Carroll's review of the literature in educational research bearing on instruction states rather bluntly:

I nevertheless make this claim, [that the study of teacher competence has been neglected] because one can find so very little research on what kinds of behaviors on the part of teachers make for desirable changes in student behavior.<sup>22</sup>

Herriott, after making a similar review of teacher effectiveness research concluded:

. . . the writer has made a test of the assumption, frequently held by educators, that the influence of specific teacher behaviors upon changes in pupil behaviors is known. He has found little support for this assumption. Rigorous quantitative research on the teacher-pupil relationship is scarce, and what little research that has been conducted is exclusively of an exploratory nature having no generality.<sup>23</sup>

It should be clear that we are not claiming that research does not exist, but rather that available studies tend to focus on problems which are only in-

<sup>20</sup> As used here, decisions about the curriculum include choices of methodology as well as content.

<sup>21</sup> Shaplin, *op. cit.*, p. 46.

<sup>22</sup> Carroll, *op. cit.*, p. 11.

<sup>23</sup> R. E. Herriott, "The Influence of Teacher Behavior Upon Changes in Pupil Behavior: Analyses and Impressions of Research." A chapter in the forthcoming volume, *The Social Sciences in Mental Health and Education*, edited by G. W. Goethals and published by the Russell Sage Foundation. Our quote is from pages 29 and 30 of a manuscript by permission of the author.

directly related to instruction or that the implications of research bearing more directly on instructional practice are ambiguous.

*Specific Examples.* Another way to point out the problem of evaluating instruction is simply to look at some examples of general teaching practices which Shaplin suggests are "good" or "bad."

(1) Shaplin implies that "an autocratic stance in the classroom" is bad. It is somewhat difficult to evaluate this inference because he fails to clarify what is meant by "autocratic." We might note, however, that Anderson, after reviewing forty-nine experimental studies in which authoritarian leadership<sup>24</sup> was compared with democratic leadership concluded:

To summarize the educational research reviewed in this article, eleven studies have reported greater learning for learner-centered groups, thirteen have shown no difference, and eight have found teacher-centered methods superior to learner-centered. It should be noted that while some investigators have reported a *statistically significant* difference favoring one method or the other, it is doubtful if any of these differences are of *practical* or *social* significance.<sup>25</sup>

At another point, in commenting on a "very serious inadequacy in the authoritarian-democratic conceptualization" he asserts:

Even if, as the present writer contends, "authoritarian" and "democratic" conveys a grossly over-simplified picture of leadership behavior, it would still be possible to defend these concepts if there were some good reason for believing that the complex of behavior which "democratic" or "authoritarian" seem to encompass is likely to be associated with high productivity and high morale. Unfortunately, no such mediating body of theory and knowledge exists. This statement is probably true of most areas of applied social science, and it is certainly applicable to educational research. There are no adequate notions of how the authoritarian-democratic construct is related to learning.<sup>26</sup>

The implications of Anderson's comments for those who deride the "autocratic stance" seem obvious.

(2) Shaplin maintains:

The planning, the process, and the analysis of teaching depend upon findings, concepts, and generalizations from many disciplines, including the academic subject fields, the behavioral sciences, and the corresponding subdisciplines within professional education . . .

<sup>24</sup> The wide scope of studies which Anderson included under the "authoritarian" label, plus the usual similarities in definitions of "autocratic" and "authoritarian," would indicate that his conclusions are relevant to the consideration of what Shaplin terms, "autocratic stance."

<sup>25</sup> R. C. Anderson, "Learning in Discussions: A Resume of the Authoritarian-Democratic Studies," *Harvard Educational Review*, XXIX (1959), p. 209.

<sup>26</sup> *Ibid.*, p. 211.

The teaching act requires a practical synthesis by the teacher of this material from many fields.<sup>27</sup>

We doubt that the behavioral sciences generally can provide a type of knowledge specific enough to be useful for the classroom teacher. This is not to say that behavioral science theory cannot serve in structuring a framework within which to carry on educational research. But having recently spent five years searching among the available psychological theories for constructs appropriate to the description and organization of teaching methods and materials, we find it difficult to believe that principles and concepts from the behavioral sciences presently have sufficient operative specificity and validity to be prescribed for practice teachers.

(3) Shaplin suggests that personal styles of grooming which are offensive to students are attributes of poor teaching.<sup>28</sup> We cannot locate any research on the relationships between types of teacher grooming, posture, or speech patterns and learning outcomes of students. We can, however, cite two incidents in the Harvard teacher education program relevant to this point. One student teacher's hair appeared dry, dirty, and unkempt. A supervisor, in conference, suggested that she be asked to wash her hair. As far as we know, this proposal was based more on common sense than on any empirical evidence as to the relative effectiveness of female student teachers with washed or unwashed hair. In a second incident, a male student teacher insisted on dressing much in the style of the "cats" with one-button roll suit coats, blue suede shoes, "flip-over" tie knot, and appropriately long hair style. This seemed to have little observable effect on his students, although no careful effort was made to evaluate the results of his failure to comply with more conventional standards of dress.

(4) Shaplin suggests that teachers who favor high interaction students are less effective than teachers who spread around the participation.<sup>29</sup> In our own research on the relationship between frequency of student interaction and learning outcomes, we found a correlation close to zero. Why is it not just as sensible to favor aggressive students who like to talk and call on quiet students only when they wish to say something? Our own research suggests that it may not be an indication of teacher incompetence to follow this procedure. (Of course, size of group, level of student maturity, complexity of material being discussed, etc. would have to be mentioned as qualifications of any such recommendation.)

(5) Shaplin suggests that inadequate "planning" leads to much boredom in the classroom.<sup>30</sup> The idea that an unexciting person will often excite students if he has well-planned lessons contradicts our common experience. The statement that "personal idiosyncrasies of the teacher hold sway with repetitive monotony"<sup>31</sup> when planning is lacking could just as validly be stated, "personal idiosyncrasies of the teacher hold sway with resultant enthusiasm and excitement." One wonders to what extent extensive lesson planning would make a Calvin Coolidge an exciting teacher, or to what extent the

<sup>27</sup> Shaplin, *op. cit.*, p. 36.

<sup>28</sup> *Ibid.*, p. 40.

<sup>29</sup> *Ibid.*, p. 41.

<sup>30</sup> *Ibid.*, p. 44.

<sup>31</sup> *Ibid.*

obvious lack of planning in Robert Frost's teaching makes him boring. The sources of boredom in classrooms may well require much more radical solutions than intensive lesson planning or more highly structured lessons on the part of teachers.

(6) Shaplin points out as a "practical difficulty of novice teachers" the tendency to plan lessons for a single day at a time, as against long range planning of sequences of lessons.<sup>32</sup> The implication is that long range sequential planning carried on by the teacher is superior to the "one day stand." There has, in fact, been some research bearing on this suggestion. One of the present authors, after intensive investigation of the literature on the unit method—which basically involves planning sequences of work around central objectives—in the area of social studies, reached the following conclusion:

The conclusions reached by experimenters and reviewers of experimental research on the social studies unit in high school warrant at least one generalization. When factual retention is the outcome measured, unit methods . . . give no striking evidence of superiority over other teaching methods. This finding perhaps should have punctured the inflated claims made for the unit method by early proponents; actually it did not. In fact, the majority of vocal curriculum-makers continue to expound the values of the unit twenty years after the issue might be considered dead.<sup>33</sup>

The literature on long-range lesson planning—the unit approach as a general method—leaves one with the impression that this is a trivial variable when considered in itself. Individual teaching style and the special way content is organized in a comprehensive text or program may well have a more important influence on learning than the teacher's attempt to put daily lessons in a broader context.

(7) The teacher is to apply "*methods and techniques appropriate . . . for the characteristics of the students specifically involved.*"<sup>34</sup> This necessitates

. . . the adaptation of aims, content and methods to the psychological characteristics of the students. Every point of the lesson must be justified in these terms, and in order to answer this question completely the teacher must carry out an enormous amount of planning and pre-testing of the students.<sup>35</sup>

This demand made upon the prospective teacher assumes that the relationships between "aims, content and methods" and the learning of students endowed with various psychological characteristics are known. We submit that there is little educational research to justify this assumption—referring now, as throughout this article, to research with direct relevance to the class-

<sup>32</sup> *Ibid.*, p. 46.

<sup>33</sup> D. W. Oliver, "The Unit Concept in Social Studies: A Re-examination," *The School Review*, LXVI, (1958), p. 215.

<sup>34</sup> Shaplin, *op. cit.*, p. 46.

<sup>35</sup> *Ibid.*, p. 47.

room situation, rather than studies involving what Carroll calls "clerical tasks and parlor games."<sup>36</sup>

In summary, we suggest that general reviews of research on teacher effectiveness as well as available research bearing on specific examples of Shaplin's conception of good and bad teaching do not bear out many of his assumptions. We believe that he is, in fact, deceptively optimistic about the present state of scientific pedagogy.

### III. SOME COMMENTS ON THE GENERALITY OF LANGUAGE

Our major criticism of Shaplin's justification of practice in teaching centers on his failure to present objective evidence to support his claims. We would also like to comment briefly on the frequent use of vague words which imply the existence of evidence which, in fact, is never presented. Very often, one gets the impression that something important has been said when, actually, the writer has only indicated that he *might* have something important to say. This leaves the reader in a rather uncomfortable position, not knowing whether he dare ask for particulars for fear of appearing ignorant. It also invites each reader to interpret critical words according to his own perceptions and biases, allowing circumvention of the rigorous criticism which might result from specificity.

Let us look at examples of the avoidance of central and difficult problems through the use of seemingly erudite but essentially empty words and phrases. On the first page of his article, Shaplin opposes those who believe that practice teaching is unnecessary. Here he refers to the "complexity of the process of teaching and the subtleties of the learning expected as a result."<sup>37</sup> The obvious questions one would put forward are: "What complexities?" "What subtleties?" It may be that the article as a whole is meant to explicate these "complexities" and "subtleties," but it is certainly not clear that this is the case.

He goes on to explain that "individuals vary greatly in their talent for teaching and in their readiness to adapt their behavior in appropriate directions."<sup>38</sup> Apparently recognizing the need for clarification, he then defines "inappropriate" as behavior which "is destructive of the status of the school," "interferes with known principles of learning," "sets up negative learning conditions," or "prevent[s] necessary interaction between teacher and students." Again certain obvious questions come to mind: With the knowledge that educators now possess, who can say what actions are "destructive of the status of the school," or more importantly, who can say which destructive actions would be "inappropriate"? (Some schools could undoubtedly profit

<sup>36</sup> Carroll, *op. cit.*, p. 8.

<sup>37</sup> Shaplin, *op. cit.*, p. 33.

<sup>38</sup> *Ibid.*, p. 34.

from some destruction to their status.) When are learning conditions "negative"? When is interaction "necessary"? These questions would provide educational scholars with an agenda for a life-time's work. Moreover, no effort is made to give these vague words the specificity which would lead the author down a rough path of substantive criticism. To mask how little we know of the essential characteristics of good teaching with such words as "readiness to adapt their behavior in appropriate directions," and then to compound the initial vagueness with terms such as "destructive," "interferes," "negative," and "necessary" really takes us nowhere. And finally to suggest, as Shaplin does, that an imaginary antagonist is arguing irrationally by "turning a cute phrase" and "begging the question entirely" seems ironic, indeed.

At another point Shaplin suggests that "teachers who carry excessively permissive or friendly attitudes into teaching" are going to have trouble.<sup>39</sup> We would agree that this is probably true, but would add that "excessively" friendly or permissive people generally run into social difficulties in and out of the classroom, and may need help of a more fundamental nature than that provided in practice teaching. What is needed, at this point, we suspect, is a clearer definition of "excessive."

The word "sophisticated" is used frequently, suggesting complexities which are never really made clear. For example, at one point it is stated "that most individuals ordinarily do not make sophisticated analyses of shifting expectations as they move from role to role."<sup>40</sup> It is also suggested that the "communication process . . . can also be made the subject of extremely deep and sophisticated analysis."<sup>41</sup> As Shaplin must know, sophistication is not necessarily a good in itself; astrologists talk about the relationships between stars, human temperament and destiny in the most sophisticated terms. The questions one certainly must ask are: By what criteria are we to judge whether or not an analysis is sophisticated; and are such sophisticated analyses and explanations valid?

At another point Shaplin states that students ought to concern themselves with "practice in the observation and analysis of the total process of teaching: the interaction of critical variables, the patterns of teaching and learning . . ."<sup>42</sup> Three comments seem obvious: How does one go about describing the "total process of teaching"? How does one know he has discovered a "critical variable"? And, which "patterns" does Shaplin have in mind?

When subjected to some analysis, the examples of vague and general language noted above simply raise more questions than they settle. Admitting that these questions exist, rather than pretending that they have been settled, is probably a more fruitful path to firm educational knowledge.

<sup>39</sup> *Ibid.*, p. 35.

<sup>40</sup> *Ibid.*, p. 34.

<sup>41</sup> *Ibid.*, p. 41.

<sup>42</sup> *Ibid.*, p. 39.

#### IV. CONCLUSION

In concluding, let us make one point clear. This critique is not meant as an attack upon practice in teaching, teacher education in general, or practitioners in teacher education. It is written simply to point out that widely differing opinions about the value of teacher education, including practice in teaching,<sup>43</sup> are not based only on ignorance or prejudice.

Teacher education as a university institution is relatively young. It is just beginning to reach the point of maturity where those involved in it can frankly admit that the teaching act, or better, the act of instruction, is not only extremely complex, but poorly understood as well. Let us not meet this challenge by pretending that the complexity is understood. It is better to admit our ignorance and proceed to dispel it, rather than claim a sophistication which for the most part can be based only on speculation.

<sup>43</sup> We are well aware that students generally have reported practice teaching to be their most valuable experience in teacher training programs. This reaction might be expected considering that this is their first concrete experience with the demands of their chosen profession. The first year of teaching experience may well appear to have similar value for those who have not gone through programs involving practice teaching.

## *Notes from Readers*

A note concerning "Practice in Teaching," by Judson T. Shaplin, *Harvard Educational Review*, Winter, 1961.\*

THE RATIONALE for the inclusion of practice as an important element in teacher training as presented by Mr. Shaplin is the most forceful and provocative that has yet appeared in educational literature. The general thesis that teaching is subject to analysis, criticism and control, and that through certain forms of carefully organized practice a teacher can improve his competence, is one with which this writer is in agreement. Those of us who have been actively engaged in the preparation of teachers and have observed firsthand the complexities of the teaching act should welcome the explosion of any myths popularized by vociferous pundits.

However, Mr. Shaplin's article, which admittedly was originally written in the form of a memorandum, makes some rather sweeping, unsupported generalizations, and, in his desire to discredit certain views or to vindicate others, the author has exposed himself to criticisms concerning the validity of certain of his conclusions.

The whole article is replete with instances of merely personal observations or hearsay accounts which in and of themselves do not establish an indisputable case for an argument. Take, for example, the author's "explanation" of the belief that practice in teaching is unnecessary, in his opening paragraphs. On what grounds is the conclusion drawn that these beliefs "are in part rationalizations or intellectualizations arising from the conflict between . . . the liberal arts college and the teachers college," or that they are "in part protests against the bureaucratic administration of certification requirements?" Though such explanations have recently been expressed by writers, they do not constitute historical explanations. Or take the "fundamental assumptions" which are brought forth to justify practice as a part of the training of teachers. We are here presented with a series of "are's" or "should's," but nowhere are we given any concrete evidence as to why these "are's" or "should's" should be the case. In fact, one could easily criticize the entire article on the grounds that it is a series of prescriptive statements about what "ought to be done" based on mere impressions and general observations rather than reliable research findings. Finally, I do not see how Mr. Shaplin's "suggestions for the organization of practice" necessarily follow from his previous analysis. To take his first suggestion as an example: Assuming that practice of the kind he advocates is essential, does it follow that "it should be continuous, beginning during the later years of academic study and continuing during the first years of teaching"? Why should it begin during the later years and not from the beginning? Why during the years of academic study at all? Why not "continuous" throughout the teaching years? These are some pertinent questions which immediately come to mind and in no logical sense does the author's suggestion necessarily follow.

\**Harvard Educational Review XXXI* (Winter, 1961), 33-59.

But where the author has allowed his own predilections to color the logic of his argument is in his discussion of the "art of teaching."

First of all, I do not know of any writer on the subject who has maintained that teaching is an art hence "training is useless." In fact, to be similarly impressionistic, those who criticize professional education in this and other countries, nevertheless concede that practice of some sort in teaching is important.

It seems to me that part of the difficulty in Mr. Shaplin's analysis in this section of the paper stems from the fact that he has not adequately clarified the meaning of the term "art." He implies that those who employ the "teaching is an art" analogy necessarily use the term to refer to "inborn talent," to a performance which unfolds naturally, mystically and teleologically, to a God-given power. This one-sided definition of art is contrasted with technical competence and craftsmanship, so that we have "artists" on the one hand, and "technicians" or "craftsmen" on the other. He accordingly dismisses any talk of "the art of teaching" as pretentious, reactionary and essentially "non-rational."

But the term "art" refers to a variety of activities or pursuits. There are the creative arts, and presumably it is exclusively in this category that the author has forced the meanings that have been associated with, or the inferences that have been drawn from, "the art of teaching"; and there are the practical arts which include activities characterized by accomplished skill, by dexterity, by careful strategy, etc. Lexical definitions may not be too illuminating, but in this case the lexical definition of the word "art" points at least to the scope of the meaning of the term. The Oxford Universal Dictionary defines art as follows:

skill; skill as the result of knowledge and practice; the application of skill to subjects of taste, as poetry, music, etc.; perfection of workmanship or execution as an object in itself; skill applied to the arts of imitation and design, painting, architecture, etc.; the cultivation of these in its principles, practice and results; anything wherein skill may be attained.

Now, in so far as the teacher engages in the performance of certain acts which require skill and the application of principles, he is or is not a good artist to the degree that he performs such acts well or badly. But such acts, be they creative or of the nature of a craft, cannot be characterized as anything else *but* artistic.

Mr. Shaplin has successfully rejected certain *associations* or *inferences* that have been made or drawn by people who assert that "teaching is an art," namely that "teachers are born not made." But by rejecting these *associations* or *inferences* he has also assumed that he has automatically rejected the proposition that "teaching is an art." It is quite possible to conceive of teaching as an art (indeed it is difficult to conceive it otherwise) without accepting that it is enshrouded with a certain "mystique," or that it is "teleological" in its essence, and more pertinently, without necessarily rejecting that it can be subjected to analysis, criticism and appropriate training. Maybe this is what the author intends his comments to convey. If this is so, then he has indeed created a straw man, and I am not quite sure that he has clarified adequately

the "teaching is an art" controversy. Indeed even the extremists who liken teaching to other creative arts do not deny the need for practice, development of skill, etc. Who are those people Mr. Shaplin is talking about anyway?

The crucial question is when and how such practice or development of skills should take place. And this is precisely what has created controversy, confusion and a variety of programs. We need more empirical evidence than presented in Mr. Shaplin's article to establish whether formal training is as good as, or better than apprenticeship under an accomplished "master." We need empirical evidence to find out whether a certain sequence is better than another. We do not have such evidence. Unless and until we do, we will continue with our predilections and impressionisms.

One final comment. The teaching act involves the careful application of rules or principles derived from educational research, as well as various stratagems, procedures, etc., derived from practice. In this sense it can rightly not be regarded as a "mystical" or "inborn" ability. But it is possible for someone to *know* all available rules and to practice, and still not be able to engage in a successful teaching act. In chapter IV of his book *The Language of Education*, Israel Scheffler points out how impossible it is to furnish "exhaustive rules" such that would guarantee success in teaching. Careful analysis of teaching would *help* in the performance of the teaching act, but it would not guarantee success. The performance of the act is, whether we like the term or not, of the nature of an art. We may establish all the *necessary* conditions, but by so doing we have not automatically established the *sufficient* conditions.

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A note concerning "Teaching Scientific Theory to First Grade Pupils by Auto-Instructional Device," by E. R. Keisler & J. D. McNeil, *Harvard Educational Review*, Winter, 1961.\*

IS SCIENTIFIC THEORY A MATTER OF USING CORRECT LANGUAGE? This article, which has raised some troublesome questions, points up quite graphically some of the real dangers which teaching machines will present to education unless some very hard-headed analysis and carefully planned programming are undertaken.

Rather than teaching first-graders to "give scientific explanations," (whatever that means), as the authors purport, it seems clear that they have succeeded in teaching a group of children a different vocabulary within which *approved* "animistic, phenomenological, or magical" (page 73) accounts may be given. Projecting into the future, it is easy to visualize millions of jargonized school children talking "Science" (e.g., electron, proton, molecule, eigenstate, energy level, etc.) as a slick veneer on a mass of ignorance, a phenomenon well known to discouraged high school and college science teachers. Furthermore the popularity of the Videosonic Tutor among the children is not too surprising. The Tutor's popularity would probably increase in direct

\* *Harvard Educational Review XXXI* (Winter, 1961), 73-83.

<sup>1</sup> *Harvard Educational Review XXXI*: 73-83; (Winter, 1961). In this article parenthetic numbers refer to page numbers in the original article.

proportion to how closely it approximated, in appearance and performance, a television set.

The experimental work reported in the article in no way shows that "children can be taught scientific explanations of physical phenomena if they learn a theoretical language for dealing with such events" (page 73). The work does not change the work of Piaget as is suggested. If anything, Piaget's work seems to be re-enforced.

First of all, what did the children learn when they were "taught" the five basic statements of "molecular theory"<sup>2</sup> (page 74). We may substitute *any* noun for molecule and the results would in all probability be unchanged (e.g., gremlin, phlogiston, lilliputian, virus, bacterium or zolcrastifier). It would be interesting to learn how so abstract a concept as "molecule" was "related to everyday objects" (page 75) in the first-grader's experience. After responding to item (1) in the program, "Can you see water vapor in the air?" with the appropriate response, the child is told, "Right! Of course not . . . molecules are too small to see" (page 77). How many of the children asked, "If molecules are so small that we cannot see them, how do we know that they exist?" No doubt a sub-program could handle such a question; but according to the work of Piaget, a six-year old child is not prepared to ask such a question and it would seem reasonable to suppose that "molecule" and "fairies that trade dimes for baby teeth" mean about the same thing to such a child.

There is no reason to believe that the children, if pushed, would not resort to the "vicious circle" referred to throughout Piaget's accounts of children's explanations of physical phenomena.<sup>3</sup> Q. Why do things get hot? A. Because the molecules move faster. Q. Why do the molecules move faster? A. Because things get hot. And so it goes.

What kinds of "behavior called for by the program . . . demonstrated that children had acquired a general understanding . . ." (page 82)? The behavior that the program calls for is simply to push the appropriate button. To be sure the child is apparently learning the word "molecule" and how certain statements are applied to a model of condensation and evaporation; but does application of appropriate statements entail general understanding? Just what could the children do with their new found insight?

In the post test, the group that had been exposed to Videosonic tutorage concludes that air "is made of molecules" from the sensation of wind on one's hands (page 81). Perhaps the authors have left some steps out in the article. Though the children responded that cool air was associated with slow molecules and condensation meant molecular attraction, how many of the children were asked, or asked why molecules attract one another? Perhaps they would have answered "molecules have hooks in them"; or perhaps this attraction is in the mind of the six-year old an emotional attraction like "mothers' love for their children." In answer to "why did a cold glass get wet"<sup>4</sup> (page 82) "molecular attraction" is no more scientific an answer than "it perspires";

<sup>2</sup>A brief look at the five basic principles reveals that they refer to kinetic theory, not molecular theory.

<sup>3</sup>J. Piaget, *The Child's Conception of Physical Causality* (New York: Harcourt Brace and Co., 1930).

<sup>4</sup>The outside of a glass filled with cold liquid will only get wet under certain special conditions. How many of the children volunteered examples in their experience of cold glasses not getting wet?

especially if Piaget is right about the children's explanations. That consistent theories could be built up around both statements is undoubtedly true.

Giving a scientific explanation is not synonymous with using scientific phraseology. A productive scientist is not one who learns a pattern of answers, nicely re-enforced, to a pre-digested set of questions. The mark of a scientist is not the answers he gives so much as the questions he asks. It is important for the child to learn that science and scientific theory do not have all the answers. Perhaps behavior which approximates an experimental environment, where the *child* must ask many questions and *do* many things to get *some* answers would be more appropriate.

Teaching machines will probably be helpful in training young people in science as well as in other disciplines. The Keisler, McNeil study is a valuable lesson in how not to use such devices.

STANLEY GOLDBERG  
*Harvard University*

## *Book Reviews*

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*The Goals of Higher Education*, Edited by Willis D. Weatherford, Jr.  
Harvard University Press, Cambridge, 1960. 122 pp. \$3.50.

Writing about education has become a branch of homiletics. There is the same sacerdotal aura, the same hortatory tone. For the truth is that education is our secular church. In an age of fading ideologies, our commitment to education is more fervent than ever. And the passions that can find scant outlet in politics these days express themselves in asserting the primacy, the sanctity of education. Even in the realm of politics, the most exciting idea to come along in a couple of decades—the Peace Corps—is itself an educational enterprise with a strong Deweyan flavor.

But the striking fact is that though education has an authority it has rarely enjoyed and commands tons of newsprint and even prime viewing hours on television, the dialogue about it lacks energy. We live in that least dramatic of intellectual climates—an age of consolidation of ideas, a time of bland, well-mannered consensus. One is hard put to find educators crossing swords in earnest. One can't even scratch up a fight between the so-called educationists and the proponents of solid liberal arts training. The schools of education are monotonously converting into liberal arts colleges, and, almost to a man, the educationists are assenting to the piety that all teachers should be grounded in an intellectual discipline.

This is not to say that there aren't new ideas about education. Schemes jostle each other in frantic competition for a small box in the *Sunday Times*. But there are no new breakthroughs comparable to Dewey's system of ideas. Rather what we have today is a catching up with ideas that have been lying around for a few decades. What is independent study, after all, but a plan that avant garde colleges have been practising for years? One is almost tempted to suggest that the managerial revolution has finally overtaken education and all the programs that were gathering dust in the wings are being given firm, executive implementation.

If the custodians of higher education are inclined to relapse into complacency, they ought to consider this challenging fact. The most important developments during the last decade have issued not from the official precincts but from sideliners in the foundations and in academic disciplines like experimental psychology. I have in mind such things as educational television, automated learning, and schemes for greater flexibility such as the Rumel Plan.

All of this is prelude to an examination of yet another book on higher education written by a variety of hands. *The Goals of Higher Education* is a collection of papers presented under the auspices of the William J. Cooper Foundation at Swarthmore College in 1958, and edited by Willis D. Weatherford, Jr. The contributors include three college presidents, one dean, and two professors. The papers, on the whole, are intelligent, high-minded, and informed by a genuine concern for the values of education. But the book is somehow unsatisfactory, even a trifle exasperating. One encounters the same brackish waters of platitude already flooding the academic plains.

Moreover, the volume lacks a unifying scheme. The phrase, "goals of higher education," is one of those protean terms which can mean almost anything. The contributors could hardly resist the impulse, in the absence of a firm directive, to adopt statesmanlike postures. The result is a book whose component parts are interesting but do not quite cohere.

The first chapter, "Individualism and the Liberal Tradition," by Harold Taylor, former president of Sarah Lawrence College, is a vigorous reaffirmation of the progressive position. After setting the historical and philosophic context of liberalism, Mr. Taylor defines liberal education as concerned with "the nurture of creative energy"—at its best "a thrust against convention and standardized opinion." He ruefully sketches the forces operating against the kind of creative, insurgent energy he admires. We live in a time, Mr. Taylor observes, which generates accommodations of one social group to another. Our young people have grown up without either illusions or high expectancy. The writer would have us restore to youth its daring and self-confidence, its sense of the possibilities of experience. How can this be done? Mr. Taylor outlines a program which would bring about the qualities he esteems most—"freshness, spontaneity, joy, responsiveness, passion, commitment." He calls for a curriculum drawn from original materials (as against denatured textbooks); the supplanting of the conventional lecture *cum* examination system by a flexible arrangement of discussion, independent study, and periodic achievement tests; a greater emphasis upon the value of immediate experience offered by creative activities like writing, painting, etc.

Mr. Taylor argues well. But the irony of his argument is that what he calls for now exists perhaps all too abundantly. Great books instead of flabby textbooks, independent study, creativity in the arts—these are our shibboleths today. Yet we do not have any sense of having fulfilled the goals of higher education. If anything, we are all the more harried by a sense of failure. Is it that Mr. Taylor's goals—freshness, spontaneity, creativity—are fragile things which are pulverized by the weight of any administrative apparatus? Is it perhaps that they are elitist goals that hardheaded educators would do well to avoid in the interest of the attainable? No one really knows. But what is clear is that Mr. Taylor's ideas, so admirable in formulation, are flattened down in practice—the very process the writer deplores in American life.

Jacob Klein, the Dean of St. John's College, offers some painful paradoxes about liberal education. Mr. Klein remorselessly probes the nature of questioning—the key act in liberal education. It is, he asserts, the process of converting the known into the unknown. (Observe how this reverses the usual melioristic views of education as changing the unknown into the known.) The writer then points out that the force of our society acts against this noble conception. Schools, with their rigid institutional arrangements, tend to inhibit the questioning process—always, in Mr. Klein's words, "a precarious and even perilous kind of business." Tradition acts as a dead weight against this open-ended view of things, and, finally, government itself has a vested interest in blunting the edge of questioning. "There is a definite tension," Mr. Klein asserts, "between the exigencies of political life and the self-sustained-goal of liberal education."

Mr. Klein's brisk tone deflects one from the grim implications of what he says. Schools are massively bureaucratized these days, and government increasingly plays an important role in higher education. One must commend

Mr. Klein for his courage in questioning the feasibility of liberal education in the Organized Society. It is entirely possible that we are kidding ourselves; liberal education may be merely a ritual gesture no longer possessing any meaning.

Richard H. Sullivan, the president of Reed College, plunges manfully into the vexing problem of admissions. This is one of the areas in higher education which constantly remind us of our fallibility. Thus it is a comfort when Mr. Sullivan remarks with becoming modesty:

One could make out a case for the proposition that those students should go to college who are most likely to be "formed, changed, and developed" by that experience, who are most likely to achieve a strengthening and maturing of responsible attitudes, and who may help to create that atmosphere in which learning may flourish. The catch, however, is that we do not know very well how to identify and select such students. (p. 55)

Gordon W. Allport, Harvard's distinguished psychologist, is represented by an essay which is agreeably perceptive, sensible, and sprightly. More than any other contributor to this volume, Mr. Allport displays a lively sense of the concrete. (College presidents are in the unlucky position of having to talk about education, and yet, burdened as they are by administrative duties and fund-raising, they are often cut off from its live currents. The professors in this volume, as a result, come off somewhat better than the presidents.)

Mr. Allport sees higher education as the process of increasing "cultural cumulation." In this respect, he argues, colleges, one part prep school and one part playground, have failed signally. And the problem has been aggravated by the All-American push for college degrees fast becoming our national fetish. Mr. Allport, however, is sympathetic to the American drive for self-betterment but insists upon distinguishing between two groups—an *Élite de l'action* and the smaller *Élite de pensée*. It is the latter that we must cherish and encourage. Mr. Allport then goes on to make some judicious suggestions about how to handle certain types of students—the unmotivated, the gifted, and the authoritarian.

What I particularly admired in Mr. Allport's paper is a certain brusque candor, not unmixed with tenderness. As if in response to Harold Taylor's euphoria, Mr. Allport shrewdly observes about graduates of certain colleges: "They burst with self-expression, but have little or nothing to express. To them the ideals of spontaneity and freedom from restraint were offered prematurely." Of guidance, the new sacred cow, Mr. Allport remarks: "Even though my own profession in recent years has spread the fashion of counseling and guidance widely, I sometimes doubt that any person is wise enough to guide or counsel any other." Throughout, Mr. Allport matches his devotion to higher education with common sense about it.

Brand Blanshard, the other professor in this volume, concerns himself with values—"the polestar of education." After warming up with some definitions ("We may describe a value as an experience that is at once pleasant and fulfilling"), Mr. Blanshard gets down to cases, and he makes some observations which are as startling as they are illuminating. To achieve intellectual discipline, one of his values, he exalts work in an inexact science over an exact science, for in the latter "clarity is achieved for one rather than

by one, since the concepts are perfectly definite from the beginning." And Mr. Blanchard talks persuasively about literature, music, and art as means of educating feeling. "We sometimes forget," he points out, "that feeling is as educable as intelligence and that, so far as happiness is concerned, its cultivation is even more important."

Mr. Blanshard is, I suppose, an old-fashioned educator with a devotion to such things as intellectual discipline, a vision of greatness, etc. But in a time when we are prone to be scheme-happy, he does well to pull us back to the main issues of values. We educate and educate—but for what? Mr. Blanshard's astringency is good for us. "What troubles me as a college teacher," he says, "is that so many students leave college with apparently no sense at all of what is central and what trivial. College courses have exposed them to greatness, but it has somehow left them cold."

The last paper, by Arthur E. Morgan, who is President-Emeritus of Antioch College, is a thoughtful, essentially hopeful argument in favor of student participation in the academic community.

It is standard fun among college teachers to denigrate the intellectual capacities of college presidents and administrators. *The Goals of Higher Education* clearly displays the intellectual sophistication, vigor, and high seriousness of the academic establishment. But we live in one of those stirring times in which the forces of history seem to be gathering for a new leap forward. Educational leadership, as reflected in this book, is good—perhaps better than it has ever been. But is it good enough for the exigencies of the hour? *The Goals of Higher Education* might very well have initiated a significant discussion about where we should go in higher education. Instead it is merely another book about higher education.

DAVID BOROFF  
New York University

*Higher Education in the United States*, Edited by Seymour E. Harris. Harvard University Press, Cambridge, 1960. 252 pp. \$5.50.

Professor Harris is truly a pioneer in the academic world. More than once, he has brought his professional tools to bear on some particular public problem considerably in advance of his fellow economists. At least a decade before there was serious interest in the "economics of education," Harris had published extensively on the financing of our institutions of learning, with emphasis on the role of the Federal government in such support. The volume at hand, a compendium of papers and commentary from a Seminar on Higher Education at Harvard in 1958-59, deals with financial matters and much else: faculty morale, experimentation, quality of instruction, allocation of resources in colleges and universities and the economic value of college education. (This list, alas for the reviewer, is not exhaustive.) There are six main sections in the book, each including an excellent summary.

What can the reader find in this volume? First, a sense of the reality of the problems of higher education. David Riesman comments that more honesty in the eminent universities about their own limitations would allow faculty members to go "to so-called third-rate places and try to work with the given situation" (p. 175). This is a kind of realism about how to reduce inequality of educational opportunity. At another extreme, Livingston W. Houston shows

in some detail how Rensselaer Polytechnic Institute made a very handsome return on a certain piece of Manhattan real estate. Chicago, incidentally, did well with junior mortgages on tankers built in Swedish yards, as reported by J. Parker Hall. This is realism about how the more adventurous places can provide themselves with additional revenue through making shrewd investments, but stamina as well as shrewdness is required.

Second, the reader will find that higher education is examined from a number of different perspectives. Only about a quarter of the forty odd contributors are economists. Included in the lot are college and university administrators, Federal officials, sociologists, and psychologists. It is unusual in one book to find such a variety of perspectives brought to bear on such a topic as "faculty status."

Third, there is much sharp controversy. This shows up especially in the discussions about how to increase the level of financial support of higher education. Harris would have tuition rates increased markedly, in part for the reason that parents have been exploiting the faculty. He would also be agreeable to much greater use of loan financing. Eldon Johnson objects strenuously if such a policy implies that public institutions should be expected to raise their student charges at the same rate. The results would be that "an economic elite will pay the full costs, an intellectual elite will earn scholarships, and the educable masses, seeking loans, will be indentured for many years" (p. 45). John F. Meck gives his arguments on the desirability of Federal tax credits for tuition. Richard A. Musgrave objects to the practice on the grounds of non-selectivity of this aid with respect to conditions of scholarship, and of the folly of opening more loop-holes in a sadly battered tax instrument.

Fourth, no one can read this book without being impressed both by the heterogeneity of institutions of higher education and by the multifarious activities carried on within the larger ones. (Carl Kaysen suggests that the distinctions among programs within a given institution be recognized by more complete differentiation of tuition charges.) The heterogeneity in higher education constitutes one important difference between it and the elementary/secondary system. It is not possible to discuss a wide range of questions in higher education without considering both public and private, secular and denominational, liberal arts and professional institutions. In elementary/secondary education, on the other hand, it is still possible to discuss economic problems in terms of a single type of public activity, certain interstate differences in school systems notwithstanding.

Fifth, there is a freshness of approach in a number of papers in this volume. I would especially mention the contributions of Otto Eckstein on prepayment of resources in higher education. The author, in particular, explores new ground.

Sixth, in at least one instance there is high humor. I am referring to the paper by Willard Thorp on how Amherst dealt with the problem of determining what its size should be. As one who has been involved in a "self-study" in a small, liberal arts college, I know just how funny this article is. Thorp manages to raise some serious questions, nonetheless, about scale factors in educational costs. As a college grows, Thorp suggests that costs increase along not some smooth curve, but something more like stair steps. At the risers, only a small increase in size will push costs up substantially; on the treads, some growth can be accommodated, say, with no noticeable expansion

of staff or physical facilities. Thorp also suggests that a cluster of different kinds of higher education institutions—with some sharing of students (graduate and undergraduate) and facilities—makes sense (as in the case, possibly, of the Claremont complex).

With such a variety of papers included in one volume, it is difficult to form any general conclusion about the findings. I did draw one, and not a happy one at that. It would appear that the calibre of information available to financial officers to choose between an investment in Swedish-built tankers and an investment in common stocks is vastly better than that which is available to other officers to make decisions on the proper composition of the student body, on adequacy of staff, and (related to both of these) on curricular offerings and methods of instruction. That these latter kinds of information are not available is not surprising. If they were, they would not always be used, given the heavy hand of tradition. But with a few notable exceptions (Kenneth Deitch and Nevitt Sanford, for example), there does not seem to be much concern for their lack, nor much feeling that where they can be had and where they can be used, they could be of the utmost importance in strengthening our institutions of higher education.

CHARLES S. BENSON  
*Harvard University*

*Financing Higher Education: 1960-70*, Edited by Dexter M. Keezer. McGraw-Hill, New York, 1959. 304 pp. \$2.00.

The title of this modest paperback volume suggests at first glance that another "how to pay for your (or your child's) college education" manual has appeared. Instead, the publisher has presented a carefully integrated collection of twelve essays which together provide a comprehensive survey of the problems with which the economics of higher education in the United States must deal during the next decade. Many have excellent illustrative graphs, and all supply the reader with an up-to-date and detailed bibliography. It is a significant contribution to a limited literature, and one which should be read not only by the presidents and trustees directly responsible for the financial operations of our colleges and universities, but by all intelligent persons concerned about the future of this country's institutions of higher education.

An introductory chapter by Dexter M. Keezer, Vice President and Director of the Economics Department of the McGraw-Hill Publishing Company, explains the purpose of the project and the manner in which it was executed. He states clearly that the volume was not intended to provide a single pat solution to, nor an encyclopedic account of all aspects of financing higher education in the United States, but was rather "designed to open up new vistas, stretch imaginations, and offer new and inspiring insights into the vastly difficult and complicated business of financing our institutions of higher education properly" (p. 4). To this end, a Steering Committee of five men was appointed to draw up a broad outline of the entire subject matter to be covered (included as an Appendix, pp. 293-295). The individual topics were then assigned for coverage by a dozen distinguished educators and executives of foundations, among them three of the original committee, all "selected to give representation to varying points of view in . . . controversial aspects." The first drafts of the resultant papers served as the basis of

discussion for a two-week seminar attended by the authors and a group of other educators and economists together with business men and editors. This conference was supported jointly by the McGraw-Hill Book Company as part of its fiftieth anniversary observance and by the Merrill Center for Economics of Amherst College. After more than fifty hours of critical evaluation in formal sessions and private conversations among the participants, the writers reworked their essays as they saw fit, and the revised versions were incorporated into the final study. Willard L. Thorp, Director of the Merrill Center, summarized the contents in a concluding chapter and made supplementary observations based upon his impressions of the seminar sessions over which he had presided.

Such extensive collaboration is not always an efficient or productive means of dealing with complex and many-faceted areas of research. In this case it seems eminently successful. The writers have presented their material with conviction and the ring of authority; no attempt has been made to reconcile disagreement with colleagues, yet there is evidenced throughout an awareness of the peculiar functions and needs of various kinds of institutions and respect for the validity of opposing points of view.

Certain premises lie beneath all of the presentations. Higher education is ". . . a peculiar industry with a unique set of problems" (p. 12). Inadequately financed at this time, it is faced with "this double-barreled problem of getting . . . out of a deep hole at the same time that it is being expanded rapidly" (p. 3) to meet the onslaught of a dramatic increase in student enrollments and to improve the quality of education offered our young people in line with the world-wide demands of our situation.

The book begins with an appraisal of the present financial situation of American colleges and universities. The authors stress repeatedly the following: a widespread need for fact finding; operations analysis; careful reporting followed by an evaluation of the road a given school has traveled in the past; and a carefully planned economic and educational course which would effect improved management and long-term projected budgets. Among the topics discussed are better use of present resources (faculty, physical plants, curriculum); broad issues of financing higher education (the role of student charges, government's, business', and philanthropy's contributions, long-term loans to students, and scholarships based on need); the role of research; the economics of universities; conflict and cooperation in American higher education (separate roles of faculty and trustees, wasteful competition between private and public institutions, and intra-state dissension among public institutions).

The men whose thinking is set forth in this informative and timely book repeatedly stress the critical role which faculties play. "The most important economic decisions—the ones which determine how effectively a college's available resources will be allocated and utilized—are actually made by the faculty when it decides upon the curriculum, upon teaching methods and schedules, and upon other aspects of the educational programs" (p. 26). If this is true, and the evidence would certainly indicate that it is, *Financing Higher Education 1960-70* should be required reading before the next faculty meeting of every college and university which now faces or anticipates financial problems in this decade.

JACQUELYN A. MATTFIELD  
Radcliffe College

*Taxes for the Schools*, Roger A. Freeman. The Institute for Social Science Research, Washington, D. C., 1960. xxxvii + 441 pp. \$5.00.

This is a strange one.

What are we to think of a book on school taxation which numbers among its quoted authorities Shakespeare, Mark Twain, and Georges Clemenceau? Has any previous work in this somewhat prosaic field relied upon such diverse sources as Arnold Toynbee and the Emperor Hsien-Tsung? And, to pose an even more hair-raising question, has any similar volume presuming to deal with research and sponsored by a research institute ever been published devoid completely of both index and bibliography?

It's possible that I'm getting old and peckish. Indeed, I seem to recall having been accused in the past of certain literary informalities of my own. But there is a time and place for almost everything, and it does seem to me that a purportedly scholarly piece of investigation, teeming with tables and studded with statistics, is a singularly odd place to come upon such statements as "It seems that nobody likes tax limitations but the people" (p. 259). Assuming that even N.E.A. members and educationists fall into the category *homo sapiens*, whom does this leave to be excepted?

Mr. Freeman also fluctuates freely between rhetoric and invective. Now, I am an admirer of both, but I hardly expected to find my old friend Hollis Allen called "myopic" (p. 219), nor to see in a tome of this type the dogmatic statement that the foes of the sales tax "do not oppose (it) because it robs the poor but because it does not rob the rich" (p. 301). Surely, sir, a pat accusation of this all-inclusive nature must work an injustice upon at least one or two opponents of the sales tax who have developed a distaste for it simply because they don't like to carry odd pennies around with them all the time.

Nevertheless, once I had hardened myself to such non-fiscal colloquialisms as "There ain't nobody here but us chickens" (p. 335), I was able to settle down and enjoy the author's message. Briefly, it boils down to a fourfold pitch:

(1) Federal aid to education means Federal control of education. Worse than this, it means control of the nation's school by professionals instead of laymen. Mr. Freeman does not, to put it mildly, approve.

(2) Neither will Mr. Freeman go for any increased state aid to local school districts, and for the same reason. He doesn't like state control either. And he flatly denies that any state is unable to finance its educational program properly by local means.

(3) In order to double school revenues in the next decade, the author advocates a continuance and expansion of the real property tax.

(4) Finally, should yet more funds be required, Mr. Freeman urges a resort to state and local taxes to raise the total amount needed.

Before launching into a discussion of these and other pertinent points made by the book, I'd like to clear myself of any suspicion that I am doing a hatchet job on Mr. Freeman. For one thing, I agree with several elements of his thesis. I'm not at all sure that Federal aid will not bring with it more headaches than it will cure, and that it will not be both too little and too late. Neither do I share the disapproval of a good many financial authorities when confronted by the specter of a statewide sales tax. The schools I am now administering are operating at least partially on moneys made available by such a tax, and no one seems much the worse.

When Mr. Freeman tees off on the abominable assessment practices found so widely throughout the fifty states, I can only cheer; and when he admonishes us to set our house in order in regard to the scandalous variety of tax exemptions made possible by national, state and local statutes, I must agree with unrestrained enthusiasm. I like Mr. Freeman's statistics. I like his breezy, informal style and direct approach, even though I did poke a little mild fun at it a while ago. In short, I am regarding Mr. Freeman with a clear, unjaundiced eye, and even with a certain amount of sympathy occasioned by the sobering thought of how lonely some of his conclusions are going to leave him.

My principal criticism of our author is that, in my opinion, he has missed the boat.

For one thing, he very evidently started out to prove something. This is quite all right, of course, and most of us do it fairly often, but not with quite the obvious relish of Mr. Freeman. In order to do bloody battle with his Number One *bête noir*, the progressive income tax, he brandishes italics, flourishes unsupported statements, and makes invidious comparisons. Now I don't like the income tax one bit better than Mr. Freeman does, but I'm not going to attack it by citing the fact that it is used very little in Communist Russia. According to this line of reasoning, we should also do away with free speech, baseball, and Scotch whisky.

The unsupported statements, I regret to say, are many, and so are unsupported quotations, of all things. I was particularly titillated by one of the latter: "In a country as rich and powerful as ours, everybody ought to be above the average" (p. 139). This is a statement which should entitle the uncited and apparently unknown author to a place in literary history in close juxtaposition with Lewis Carroll.

An example of the unsupported statement in breathless pursuit of a pre-conceived quarry is this one in regard to legislative motives: "Congress . . . passes grants-in-aid programs not to help state and local governments do what they want to do, but to have them do what Congress wants them to do" (p. 169). This, I submit, gives entirely too much credit to Congressional intelligence. No one remotely familiar with the typical Congressman's pathetic willingness to vote for almost anything in order to get votes, placate pressure groups, and secure a few moments' peace and quiet, in that order, would attribute to him the Machiavellian connivery which Mr. Freeman seems eager to accord him.

Another area in which the author seems to be haring after a false scent is that of the real property tax. He seems to me to have an entirely unreasonable fondness for this hoary old has-been. This particular source of school revenue is still very much in evidence throughout the land, true enough, but it has been condemned and denounced and anathematized by whole generations of financial authorities. Mr. Freeman acknowledges this, and indeed admits that most states have abandoned it "quite properly" (p. 220) as a major source of income. But he still likes it for local school support. After tracing it back into 2500 years of maladministration, he argues that a little reform will rehabilitate it. Such optimism, after twenty-five centuries, deserves recognition, and I am glad to note it here.

Mr. Freeman rightly blames poor assessment practices for much of the low repute which hedges about the property tax. He points out that school debt limits could be more than tripled by valuing property in accordance

with the law. He asks why statutory debt ceilings should be blamed for putting unreasonable shackles on school districts when the limiting factor is an illegal assessment practice which can be locally corrected. The weasel word here is "locally." Few school districts control the election or conduct of the county assessor. As a result, the local school district is as helpless to "correct" such admittedly bad practice as Mr. Freeman is to repeal the progressive income tax.

While I can't get too excited about the resuscitation of the real property tax, I can muster up quite a lather in regard to Mr. Freeman's next proposal, which is a real lulu. He longs wistfully for "integrated local governments" (p. 260) which would be responsible for all local functions—including schools. The school people would spend their waking hours battling desperately for a fair slice of the tax dollar with the park people, the police and fire departments, the sewage people, and so on. This would, of course, place the schools prominently in the forefront of city and county politics, which is precisely the place where the American people do *not* want them. If Mr. Freeman thinks educators dabble too much in politics as things are, he should get a good look at them if his "integrated local government" plan goes through.

But the area I kept waiting for Mr. Freeman to barge into in real earnest was that of school staffing and curriculum. Here is where some actual king-size savings could be made, particularly in the nation's high school budgets. He does comment several times that we need more education for our money, and he could have said it several more times without getting any argument from me.

I don't want anyone to misunderstand me. I'm not seriously proposing this major surgical operation, but just think for a moment of the academic classrooms we could build and the science and foreign language teachers we could employ if we were suddenly to stop spending money on school transportation systems, cafeterias, health services, recreation programs, driver training, arts and crafts, home economics, adult education classes in upholstering and cake decorating, marching bands, travelling glee clubs, and their proliferating and expensive ilk. Few of these delightful but nonessential items are going to help us defeat the Russians.

We school administrators like to tell ourselves that we are not responsible for the fact that these and dozens of kindred services have been thrust upon the schools to perform. And it is true. State legislatures and multitudinous pressure groups have insisted over the years that the schools fill various vacuums created by the simultaneous decline of the church and the home. Our own district voters have often demanded that their schools bedeck themselves in frills. Most educators would really like to educate, but we find ourselves so internally occupied with lunch menus, bus routes, Little League schedules, and preventive inoculations that Euclid and Darwin are being compelled to take positions somewhere in the third row back of the massed sousaphones.

I did a little figuring the other day, and arrived at the disconcerting conclusion that almost fifteen percent of my own district's expenditures this year are going for stuff like this. If I could wave somebody's magic wand and eliminate the items listed above, I would be able to give each of my remaining teachers a \$1000 raise, and build three new classrooms every year.

I'm a little surprised that Mr. Freeman didn't comment on administrative

costs too, although he may have touched upon these in his first book which I missed reading. There are far too many assistant superintendents, associate superintendents, deputy superintendents, administrative assistants, coordinators, consultants, supervisors, directors, and assorted specialists in school districts which don't need them at all and which are hiring them merely so that they can ape the few very large districts which do.

So what can we say in summary about Mr. Freeman's book? It's worth reading. In my opinion, it misses most of the points it might have made because of the author's demolition-squad approach to the income tax and the question of Federal aid. But it's readable, it's provocative, and it's certainly different. One suggestion, Mr. Freeman. Next time try the rapier instead of the meat axe. I really think your fencing technique would be excellent.

MAX L. RAFFERTY, JR.  
*La Canada Unified School District  
California*

*An Application of Psychoanalysis to Education*, Richard M. Jones. Charles C Thomas, Springfield, 1960. xi + 124 pp. \$5.50.

This exciting book describes the impact of a course entitled *Self-Knowledge Workshop* upon the self-acceptance and ethnic attitudes of a group of seventeen year old girls in a "tradition bound New England preparatory school" (p. 3). Lawrence Kubie sets the stage for the work in the first sentence of his introduction: "Throughout our educational system a realization is growing that both intellectual development and creativity will continue to be seriously hampered unless we find out how to make emotional maturation a part of education" (p. vii).

The data, which were based on shifts in the girls' scores from the beginning to the end of a school year on a battery of personality tests and attitude scales, confirmed Jones's hypothesis that the single course would alter ethnic attitudes and feelings of self-acceptance for the members of the experimental group more than for two sets of matched control subjects who did not take the course.

But the importance of this book goes beyond the confirmation of the hypotheses. There are verbatim transcripts of the workshop sessions in which the author traces the group's movement through a series of conflicts.

The group struggles successively and repeatedly with problems Erikson would predict: trust, autonomy, initiative, industry, and the search for identity. Jones, who is Assistant Professor of Psychology at Brandeis University, also generates theoretical ideas as he presents seven assumptions at the "untested edges of systematic observation and theory building" (p. 15) in order to design a method for helping students achieve self-knowledge in a classroom setting. The fifth assumption is "Neurotic process (not neurosis) is ubiquitous" (p. 19). His analysis of educational methods in relation to this psychoanalytic assumption leads him to the "sobering conclusion that formal education, as we know it, is in its fundamental assumptions, neurotogenic" (p. 20). His data contrasting the changes in the girls' self-acceptance scores in the different groups tend to support his reasoning.

Readers versed in psychoanalytic theory will be pleased that Jones writes within the language and assumptions of that theory. He did select an

audience. But there is the rub. His audience includes not just psychoanalysts and psychologists but others who are not so versed in psychoanalysis or research design; indeed they may be antagonistic to both. Thus while this pioneering effort may provide encouragement for researchers who seek enlightened scholastic settings to pursue their own investigations of educational problems, the book probably will not be read by those who have the power to make such settings available. The tactical next step for Dr. Jones might be to offer a self-knowledge workshop for educational leaders which will free them to delve into the hypotheses and ideas of psychoanalysis.

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*Creativity and the Individual: Summaries of Selected Literature in Psychology and Psychiatry*, Morris I. Stein and Shirley J. Heinze. A McKinsey Foundation Annotated Bibliography. A publication of the Graduate School of Business, the University of Chicago, Third Series, The Free Press of Glencoe, Illinois, 1960. xii + 428 pp. \$10.00.

*Creativity and the Individual* brings together in one volume the essence of some 300 publications on creativity and high-level talent. It represents an enormous amount of work, done with care, discernment, and precision. The abstracts are concise and interesting. Spot checks by this reviewer in comparing the abstracts with the originals revealed no exception to the general impression that the abstracting has been done with great fairness and high fidelity to the original authors.

At the beginning of each chapter the reader will find brief, descriptive, non-evaluative, topical cross-references which supplement the Table of Contents and the Index. He will also find exact references so that he can easily go to the original publication for more details. The book will be a valuable and dependable time-saver for all persons interested in creativity. It can be browsed in or read systematically. From the standpoint of layout and type, the book is pleasing to the eye, although it is inconvenient to the reader to find the numbers of left-hand pages concealed within the fold of the book.

It is the sub-title of the book that describes its contents, which the authors have grouped under thirteen chapters: The Criterion and Other Problems, The Creative Process, Heredity, The Nervous System, Age, Early Experiences, Religion, Cognitive Factors, Personality Characteristics and Motivating Factors (subdivided into three parts: Theoretical Contributions; Empirical Studies; Case Studies), Psychopathology and Other Illnesses, Statistical Studies, Stimulating Creativity, Symposia and Surveys of the Literature. The Index combines both names and topics.

*Creativity and the Individual*, according to the Foreword, "continues the tradition of publishing fundamental and applied research that contributes new knowledge and new ideas important for the practice of business" (p. v). From the Preface, the hope of the Foundation in supporting this "annotated bibliography on the creative process" was to "help improve communication on this topic within both the academic world and the business world (p. vii).

The literature concerning creativity, say the authors in their Introduction, has dealt with "three major areas—the individual, his characteristics, and the processes through which he arrives at the creative product; the environ-

ment, its facilitating or inhibiting effect on creativity; and the relationship of creativity to the transactions between the individual and his environment. This book concerns itself primarily with the first of these areas. . . ."

The authors say further that

the most striking features of the literature on creativity are the variety of approaches that investigators have followed, the variety of results that have been obtained, and the numerous factors about which suggestions and speculations have been made. . . . The multiplicity of approaches and findings among different authors obviously presented difficulties in organization. . . . In preparing the summaries . . . the aim was to be unbiased and noncritical. Every effort has been made to remain true to the author's own thoughts—and often his words. . . . Some bias must have operated both in the articles and books selected and in the material selected for the summaries. (pp. 1-2)

The book meets the declared objectives of the authors. This is all they planned to do. Even so, it is an odd volume. For the book gives much of everybody else and so little of the authors themselves. There are few books in which one can find less of the authors' thinking, for their "objectivity" has all but removed them from the book. This reader has a feeling of great loss and deprivation. With communication between the authors and the reader so completely denied, the very goal of the book seems inconsistent with a concept of creativity. It is a disappointment to the reader to discover so uncreative a volume bearing this title. In a sense, the book is high level hack work. Ten years from now there may be electronic scanning machines that can turn out this kind of work and print the book in half a day. Since business men as well as research workers live in the moment of now and not ten years from now, the book represents a great convenience. But the planning of just this much is unworthy of the creative competence and research sophistication of the authors. Instead of giving us a creative book on creativity, the authors have given us an objective, antiseptic, sterile study in which creativity has been handled with the remote, mechanical, impersonal care used in picking up hot isotopes—careful to avoid contamination.

But what a pity! For creativity is not objectivity; it is the deepest, most penetrating, truthful, personal, discriminating perception that man has yet experienced. Moreover, it involves action or communication—even symbolic communication—or both. The topic of this volume ought not to be handled from a distance; the title should mean the human, warm, throbbing, interacting, creating individual.

For every paradox reported in this book, for every contradiction, for all the variety of approaches, concepts, definitions, hypotheses, and assumptions, the reader may ask: what do these authors themselves think? What priorities do they give to the paradoxes and contradictions? What common denominators have they discovered which would help us all in dealing with this plethora of differences? Which concepts would they discard? It would be an impossible task, of course, for the authors to deal with all the varieties and reconcile all the differences in this book. But could they not have produced and communicated in the book some new ideas, for example, on the "criterion problem," which, in Chapter I—one of the shortest chapters in the

book—we are told is "one of the most critical questions in the investigation of creativity"? Could they not have shared with the reader their thinking on some of the paradoxes which they have encountered?

A lesser gap in the book is acknowledged by the authors, themselves, on page one. The literature, we are told, has dealt with three major areas: *the individual, . . . the environment, . . .* and the *relationship of creativity to the transactions between the individual and his environment*. The book "concerns itself primarily with the first of these areas." The third area is definitely minimized. The Index contains no reference to *relationship* or *interaction*, though these concepts are used by May, Mooney, Murphy, Rogers, Lorge et al, and are important to Stein who says that "'novel' . . . is a consequence of interaction between a creative individual and his environment" (p. 36). There is one reference to transactional approach to creativity, the title of Stein's paper published in 1956.

One can well raise the question whether the classification into an area of the *individual*, as something different from his environment or from his interacting with it, is not a static, historical stereotype, a psychological myth, a misperception of the early 1900's. To the extent, however, that areas can be so designated, the area of transaction and interaction is the newest, most recent, and of the three areas, in this reviewer's judgment, the most related to creativity; yet in this book it is the most neglected.

The book practically ignores children and contains little on creativity as a developmental process. The "Individual" in this volume is an adult. From the standpoint of this book and its creative researchers, creative adults might as well, like Venus, have been born full blown from the head of Zeus. The chapter on "Age" includes one psychoanalytic reference to creativity in children. The remainder of the abstracts treat mostly of the decline of productivity with age. The long chapter on "The Creative Process" is not on the developmental process but on the occupations and preoccupations of adults, in art, mathematics, music, poetry and science.

The chapter on "Early Experiences" is devoted mostly to long and excellent summaries of research done by Terman and his colleagues on individuals with "genius" I. Q.'s. These studies, though concerned with children and valuable in themselves, are today almost miscatalogued under creativity. Terman's "intelligent children" were not selected for their responses of originality or creativity but for their swift and superior conformity to standardized norms.

With all this material in *Creativity and the Individual* now so excellently and conveniently abstracted and assembled, it is to be expected that many of the contradictions, paradoxes, and semantic fumblings will soon be more easily clarified or discarded.

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*Psychology of the Child*, Robert I. Watson. John Wiley & Sons, New York, 1959. 662 pp. \$6.95.

Robert Watson, Professor of Psychology and Director of the Graduate Training Program in Clinical Psychology at Northwestern University, has written a text which covers the period of development from inception to late childhood (it excludes adolescence). Unlike other texts, it attempts to deal

with the relevant empirical evidence as it pertains to two major theoretical positions in the field of child development: psychoanalysis and behavior-social learning theory. The two positions can be differentiated by the focus of attention: psychoanalysis concerns itself with rechanneling the output of the biological energizers; behavior-social learning theory concerns itself with the channeling process and its agents instead of the source of the energy. Dr. Watson weighs the evidence in a number of areas and "judges" each theory by this evidence. At times he offers theoretical modifications but, in general, he appears to adopt behavior-social learning theory. This book is highly reminiscent of Sears' monograph, *Survey of Objective Studies of Psychoanalytic Concepts* (Sears, R. R., 1947), which attempted to "justify" psychoanalytical theory by citing "objective studies." Watson, like Sears, makes the burden of proof rest on Freud. Judgment of Watson's conclusions can only be made when much more empirical evidence is available.

The author approaches the behavior-social learning findings somewhat less critically than one would have hoped. That is, Watson appears to have written with a bias—perhaps a bias which was legitimately acquired through perusal of the literature, but one which might have been more explicitly stated.

The book is divided into five sections. The first section, History and Principles, contains five chapters. Chapter 1 is a succinct, well-organized chapter on the history of the study of the child (excellent for beginning students). The second chapter, a good presentation of design and measurement techniques, is limited somewhat by an insufficient elaboration of experimental manipulation as opposed to "statistical control." Chapter 3, on development, presents the physical development of the organism, with a stated bias for function rather than structure, but with no explanation to the readers for the selection of the particular areas which are expanded. The last two chapters in this first section discuss the importance of socialization and an exposition of the two theoretical positions.

The remainder of the book is organized around developmental periods. Within each period, the author considers: a) psychological development [". . . the (infant) is considered relatively independent of the social situation" (p. 33); b) psychosocial development [". . . as a social being" (p. 34)]; and c) psychological disturbances.

There is no clear introductory statement which indicates the level of the student for whom this text is intended. The two opening chapters lead one to the conclusion that this is an elementary text but it becomes apparent in Chapter 3 that the reader is expected to have mastered at least the terminology of instrumental learning theory. Not until Chapter 4 does the author state, ". . . fortunately some prior acquaintance with the psychology of learning may be assumed on the part of readers . . ." (p. 119). In addition, a beginning student might find that the intricate sentence construction sometimes obscures the author's meaning.

Watson has assembled the major child development research competently. Therefore, this book is an excellent starting point for obtaining the major sources in a particular area. Many of the summaries are precise and clear. The distinction between the theoretical constructs of psychology (e.g., aggression and reality) is carefully made early in the text. Throughout Watson attempts to keep his reader aware of the distinction and aware that these constructs should be questioned and evaluated.

Perhaps this text would be most appropriate and helpful in a course which intended to explore theory in child development. Watson has set for himself the task of attempting to resolve two theoretical positions, even though neither position has ever been clearly and completely stated in relation to child development. His task is a difficult one (at any level), and perhaps not appropriate for a general child psychology textbook.

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*Teaching Machines and Programmed Learning*, Edited by A. A. Lumsdaine and Robert Glaser. Department of Audio Visual Instruction of the N.E.A., Washington, D.C., 1960. 724 pp. \$7.50.

The express purpose of *Teaching Machines and Programmed Learning* is "to provide a comprehensive reference source on teaching machines and the techniques of instruction that are associated with them" (p. 1). It is unclear what role "a comprehensive reference source" will play in the new era that this book heralds, an age of educational technology. When behavior and the environment are engineered to specifications, and learning is, by definition, programmed learning, the student found reading a comprehensive reference source may be accused of non-adaptive sentimentalism akin to serving tea and scones during weightless flight; presumably, he would be appropriately reconditioned.

However uncertain the book's future role in the marvelous world it forecasts, its present role is clear: it serves both as gadfly and as guide for the modern educator. Among the 47 papers by distinguished psychologists, educators, and engineers collected here, we find reports of the development of a science of human behavior and the prospects for the utilization of this science to change the condition of man. Needless to say, a change in the condition of man means a change in man himself. Few who have read the book would say that the issues in question are of less moment than its occasionally messianic tone implies.

In part I of *Teaching Machines and Programmed Learning* the editors describe the purpose and scope of the book by presenting a "review," "overview," and "preview" of the field. In part II, S. L. Pressey and his co-workers describe some early attempts to construct test scoring devices that would also have value for self-instruction. Part III of the book presents selected writings and research by B. F. Skinner and his students. Here, the reader may view the fruits of applying the principles of the experimental analysis of behavior to education; he may also glimpse the strategy and tactics of the science of behavior on which these applications are based. Four completed programs and their associated devices are described, along with initial findings obtained in the school setting. Additional concepts, programs, devices, and extensive "field tests" are described in a later section.

"Test scoring devices and experimental analysis of behavior are only two of the points of departure for writers and researchers in the field of automated teaching. Part IV describes another starting point—specific training needs. The articles in this section describe a greater diversity of equipment and

techniques and place greater emphasis on the acquisition of nonverbal skills than is apparent in part III.

Part V provides further evidence that the application of behavioral science to education is not only an achievement devoutly to be wished for but also a present reality. Here are presented the results of recent experiments in laboratories and schools along with an examination of the implications of these findings.

Two appendices complete this major work: "Appendix I is an annotated compilation of papers in the field of teaching machines and programmed learning. Appendix II is a consolidated bibliography of all the references [cited in the book]" (p. 574).

### *The Identity of Teaching Machines and Programmed Learning*

While the purpose of the authors may have been to provide a comprehensive reference source, they have accomplished something much more significant and far-reaching. The present collection of articles has defined teaching machines and programmed learning by colligation. Through the contributions of the 47 authors, programmed learning has taken on an identity—an identity that is misleading, inconsistent, self-contradictory; an identity that cannot but militate against the long-term efficacy of programmed learning. Teaching machines and programmed learning are at once identified with (1) Socrates, (2) aids to education, including audio-visual aids, self-scoring devices, and computers, and (3) behavioral science. There is no doubt that Socrates and aids to education have adventitious properties in common with teaching machines and programmed learning. However, to say that a test-scoring device, for example, is a teaching machine—or to include a description of such devices in a text on teaching machines—is to engage in metaphor. The metaphor is understandable in the light of the uncertain identity of programmed learning. As Skinner has pointed out, "In a novel situation to which no generic term can be extended, the only effective behavior may be metaphorical." However, "scientific verbal behavior is set up and maintained because of certain practical consequences;" metaphor cannot serve science well (Skinner, 1957). In view of the growing scientific, social, and commercial interest in programmed learning its proper identification should be considered carefully.

### *Programmed learning and Socrates*

The identification of programmed learning with the Socratic method has several sources of strength (*vide p. 5*). In academic circles it is fashionable to view each advance in the humanities as a footnote to Plato or Aristotle. Perhaps an amusing comment on progress in education is also implied. Finally, the Socratic method does have a few features in common with programmed learning. However, programmed learning should not limit itself to the techniques of behavioral control exercised by Socrates and should not be identified with these techniques. The nature of the behavioral control that can be exerted by teaching machines far exceeds the powers of the ancient Greek. For example, Pask (p. 336) describes an electronic keyboard teaching machine that makes adaptive changes in the program based on error distributions and response latencies. A second example is provided by a device, designed by the reviewer to teach prosodic features of speech, that makes adaptive changes in the program as it analyzes the mismatch in relative amplitude, fundamental frequency, and tempo of the stimulus and the echoic response of the subject.

Few teaching machines or programs currently utilize the true potential of automation. This potential will not be realized as long as machines and programs are viewed as so many private tutors.

#### *Programmed learning and aids to education*

The name AIDS (auto-instructional devices) has been proposed for teaching machines; a more unfortunate choice of name could hardly have been made. Properly designed teaching machines, along with their programs, are not aids at all but teacher-surrogates for the behaviors that they develop. In accordance with Porter's classification of teaching aids and devices (pp. 116, 117), it is proposed that "aids" be reserved for those techniques or equipments "which must be supplemented by some means, usually a teacher, in order to be effective" (p. 118).

The identification of teaching machines and programmed learning with aids to education such as movies, self-scoring devices, and computers, rather than with a science of behavior, has led to unfortunate inconsistencies in approaches to the improvement of education. The new technology of education described so vividly by Ramo (p. 367), for example, shows a great deal of sophistication in the presentation of stimuli and in the processing of behavioral data, while evidencing little or no sophistication in the modification of the behavior that links the two and is, after all, the goal of the entire process. In a wondrous world of automatic student recognition, automatic curriculum selection, and automatic performance analysis, it verges on the comic to read that "... the student is allowed a period for undisturbed contemplative thought before registering his answer" (p. 373). Every step in the educational process that Ramo describes is engineered to specifications except the behavior itself! Yet the possibilities of behavioral engineering are as great, and the potential profits as many, as those derived from electronic engineering. "Educational technology" may become an oxymoron if it denotes an admixture of the marvel that is electronics and the anachronism that is educational practice. Instead, a conception of education is required that is consistent with our conception of other areas of applied science. The traditional image of man is a cartoon against the backdrop of modern science. We need the courage to draw up specifications for an educated man that are *not* specifications for ourselves and the willingness to control behavior to bring that man about.

The identification of teaching machines and programmed learning with aids to education obscures the true nature of the decision which the educator must make; a considered decision to adopt the materials and techniques of programmed learning implies an acceptance of a scientific conception of human behavior. Programmed learning will make only a slight fraction of its potential contribution to education if it is viewed only as an aid that will leave the teacher free for "developing [sic] in her pupils fine enthusiasms, clear thinking, and high ideals" (Pressey, p. 40). We must review the goals of education, specify the desired behaviors, and examine the means of obtaining—not "developing"—these behaviors, in the light of a science of behavior. To do less is dishonest.

The failure to identify programmed learning with a science of human behavior and the concomitant failure to appreciate its implications has led to a proliferation of devices, under the pressure of commercial profit-mongering, and to a willy-nilly trading of behavioral specifications for considerations of

profit in machine design. There is more than a coincidental resemblance between the products of teaching machine manufacturers before and after they entered the field. The commercial pattern seems to be: (1) recognition of a potential market; (2) design of a prototype device based primarily on current production facilities and sales outlets; (3) consultation with psychologists, educators, or others to select the prevailing point of view that best validates the device designed in step (2); (4) preparation of literature and initial production run. Pressey seems to have pioneered this approach, fitting the theory to the device, when he said of his self-scoring apparatus, exhibited in 1924: "The somewhat astounding way in which the functioning of the apparatus seems to fit in with the so-called "laws of learning" deserves mention in this connection" (p. 37). The author goes on to enumerate the laws that, in retrospect, "fit in."

The "products" of this approach range from stimulus-presentation devices costing several thousand dollars each to fifty cent "sit and spit" test scoring devices (digital application of saliva to a treated card reveals which multiple choice letter, A, B, C, or D, is correct). Each of these miscreants masquerades under the topical heading of teaching machines with such magical names as the Didak 101, the Mentor, etc. The sales techniques employed make the Hidden Persuaders seem forthright and candid by invidious comparison.

The reviewer regrets to write that *Teaching Machines and Programmed Learning*, far from ameliorating this situation, may be expected to aggravate it. Part IV of the book demonstrates the scope of application, occasionally proven, mainly potential, of teaching machines. The variety of devices and approaches presented here would be salutary were it not for the fact that, as it turns out, each author with a device considers himself a knowledgeable, however unique, behavioral scientist. For example, an article by Crowder in part IV of the book suggests several basic assumptions concerning human learning along with an underlying model whose appropriateness may well be questioned (cf. Glaser, p. 437). Thus, "we approach the design of a teaching machine as a problem in communication" (p. 298). "The primary purpose is to determine whether the communication was successful, in order that corrective steps may be taken by the machine if the communication process has failed" (p. 288). Crowder denies access to any "educational philosopher's stone" (p. 287); this "machine philosopher's stone" seems a poor substitute, however.

The contributors to part IV seem to have concluded that, since no one point of view is held unanimously among psychologists, any point of view is equally tenable. That this is obviously untrue is testified to by the superficiality and inconsistencies of the various behavior "theories" that abound in part IV. An extension of this logic, which the reader may well make, permits the educator to adopt those teaching machines, and those features of machines, that appear consistent with his personal philosophy. Such an outcome would be disastrous for the ultimate efficacy of automated teaching. What is required of the educator, on the contrary, is a re-evaluation of personal philosophy in the light of the principles of behavior that underlie the development and format of the technological revolution to which this text is testimony.

#### *Programmed learning and behavioral science*

Unlike other recent changes in educational technology, the growing utilization of programmed materials has a surprising by-product that strength-

ens the very movement itself. It cannot be said of educational TV, for example, that its use in the school has led to a wider understanding of electronics. However, a growing interest in programmed learning has led to an increasing awareness of the principles of behavior on which it is based. This is well illustrated in Barlow's report on the self-instruction program at Earlham College: "Each programmer so far has himself worked through at least a portion of the Holland-Skinner program for the natural science psychology course at Harvard. The programmers thus learn some of the background of the basic principles we are currently attempting to follow at the same time that they become familiar with the oldest program available" (p. 419). Barlow's rationale has proven equally appealing to many other psychologists and educators throughout the country; the Holland-Skinner program is widely used not only in introductory courses in psychology and education but also in advanced seminars. The recent paperback edition of the program should abet this development (Holland and Skinner, 1961).

The Holland-Skinner program has been, therefore, an important step toward identifying programmed learning with its parent discipline. The second major step in this direction is the collection of articles presented in part III of *Teaching Machines and Programmed Learning*. This section of the book should go far in correcting the widespread misunderstanding of the relevance of laboratory research with humans and subhumans to problems in education. A comment by Mr. Crowder, "I have no quarrel with Skinner; when a man wants to have some pigeons trained I send him to Skinner" was received with great enthusiasm at a recent convention of the Department of Audio-Visual Instruction, N.E.A. It is appropriate, therefore, that this very organization should sponsor the publication of articles that may remedy this misunderstanding.

The concept that links the knowledge gained in the laboratory to its application in education is *control*. The recent advances in the science of learning have taken place because "the law of effect has been taken seriously; we have made sure that effects do occur and that they occur under conditions which are optimal for producing the changes called learning" (Skinner, pp. 99, 100). Effects do occur reliably, promptly, and under optimal conditions only when the environment is controlled. To the extent that we sacrifice this control we impair and deflect the learning process.

#### *Questions and research for teaching machines and programmed learning*

Not only programs but also programmers and books about programmed learning are filled with questions. A question is both an effective way of evoking the behavior of others and also an effective way of evoking our own verbal behavior. The following questions, taken from various pages of this book, are presented in order to (a) evoke verbal behavior on the part of the reader, (b) suggest further the nature of research and writing in this area, (c) indicate some of the unresolved problems in programmed learning discussed throughout the book.

1. Which is better: branching or linear programming?
2. Which is better: multiple choice or constructed response modes? Is implicit responding inferior to overt behavior in learning?
3. Is automatic response scoring preferable to self-scoring?
4. Is a cheat-proof feature in machine design important?
5. The reinforcing control exerted by candy, points, "going on to the next

item," and "making the gadget work" have all been demonstrated. Which reinforcers should be employed?

6. Are multiple programs, branching, or adaptive programming important in the light of individual differences?

7. What subject matters do not "lend themselves" to programming?

8. What is the optimal length of frame, length of set, and length of program? In constructed response programming, what is the optimal length of response?

9. What is the optimal length of time for a student to work on a program in one sitting?

10. How should prompts be introduced and vanished? What amount or rate of prompting is optimal?

11. What error rate is optimal? Is an error-repeat feature important? How many correct responses to an item should be required before it is dropped out of the program.

12. What are the preferred sequencing logics? What is the optimal size of step?

13. What are the best ways to maintain student motivation?

14. Do the verbal knowledge, motor skills, and study habits acquired through programmed learning transfer to other performances?

In the opinion of the reviewer, questions like those enumerated above are not effective stimuli for the type of research that is needed in the area of programmed learning. At best these questions point to some of the variables that control the behavior of the student. Since the student's behavior at any point is a function of the complex interaction of all these variables, and many others not cited, it is not possible to give a general answer to any single question nor, of course, to answer all at once.

Questions of the type: which is better, A or B? lead to a type of inquiry which we may call comparison research. This kind of research has an extensive tradition in education and psychology, and its pursuit probably accounts in large part for the prior sterility of these disciplines. Following the introduction of self-instructional test-scoring devices early in 1924, Pressey wrote: "The needful thing here is experimentally to compare learning 'by machine' with learning by more usual methods; a graduate student is now making this comparison" (p. 45). If studies of this type had been consigned exclusively to pre-doctoral research there would be less cause for concern. As Gilbert points out, however, there is currently "a whole rash of so-called 'control-experimental group' experiments purporting to answer questions about principles of programming education . . . [despite] a basis for more considered effort . . ." (p. 477). Several studies of the comparison-research type appear in *Teaching Machines and Programmed Learning*. Porter has described the method and its limitations well:

The procedure which has been followed is to obtain approximately equated groups of students and expose one group to the usual classroom methods of teaching . . . and the other group . . . to mechanical device teaching utilizing the same subject matter. Effectiveness of the two teaching methods is then evaluated by comparing the scores for the two groups of students obtained on identical tests.

Such experimentation may indeed show an advantage for one or the other method of teaching, but there is no guarantee that the results obtained can be replicated, for the outcome of these experiments

depends upon unspecified parameters of the 'usual' classroom situation. As stated by one group of researchers, 'the complexity of the teaching-learning process is such that attempts to establish the relative merit of a "general method of teaching" are likely to prove inconclusive, (Guetzkow et. al., 1954). To be of value, investigations concerning mechanical teaching devices, or any other method of teaching, have to deal with the variables which lie behind the presumed superiority of the method." (p. 127)

The author continues with a critique of the control-experimental group studies by Pressey and his co-workers.

In the light of the obvious methodological limitations of comparison research it is difficult to understand what motivates its continued pursuit. The reviewer cannot agree with Carr that "a certain amount of evaluation research is necessary in order to justify continued interest in the basic concept of automated instruction" (p. 451). Interest in automated instruction is merely an extension of interest in the analysis and control of human behavior; it has the same justifications as the basic endeavor to understand man's condition and to improve it.

If further justification is needed, the reader may consider the likelihood that a systematic analysis of the acquisition of knowledge with the tools of a science of behavior will lead to improvements in current educational practices. For those who would "take the cash and let the credit go" there are cash prizes abundantly to be had, as the reports of "field trials" of programmed learning indicate. (See, for example, Blyth, p. 401.)

The basis for "a more considered effort" is the strategy of research that has led to a modern science of behavior. "The major portion of research effort should be devoted to an experimental analysis of the parameters which influence the effectiveness of self-instructional devices" (Carr, p. 541). Questions for research of the form: which is better, A or B? are not appropriate. Instead we should ask: under what conditions are A and B effective in controlling behavior? As Gilbert has said, we must ask, "What variable is effective? and what can teach?" (p. 484). In commenting on the proper length of programmed materials, Skinner has characterized this approach: "In the long run, only an experimental analysis of material in a natural class situation will determine suitable length for a given type of material" (p. 163). Several of the studies reported used this type of research approach: careful analysis of program and machine variables in terms of the "fine-grain" of student performance, followed by corrective adjustments in program techniques, content, and arrangement. Enough time has not passed since the inception of programmed learning for the products of such 'iterative programming' to become widely available. The Holland-Skinner program, "A self-tutoring introduction to a science of behavior," may be the best example of iterative programming to date (*vide pp. 215ff.*).

The "more considered effort" in the improvement of educational practices referred to earlier should take place at two levels. Concurrent with an experimental analysis of variables influencing self-instruction, there must be continued research in the parent discipline: the experimental analysis of behavior. An analysis of behavior under the controlled conditions of the laboratory is propaedeutic to the manipulation of that behavior in the complex environment of the classroom (*vide Rothkopf, p. 328; Melton p. 663*).

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*Teaching Machines: An Annotated Bibliography*, Edward B. Fry, Glenn L. Bryan and Joseph W. Rigney, Department of Audio-Visual Instruction of the N.E.A., Washington, D. C., 1960. 80 pp. \$1.50.

With this bibliography, the authors have performed a real service to researchers in the area of programmed instruction. The bibliography is divided into four sections. In the first, the Introduction, the authors provide information on existing programs and on programs in development as of 1960. They define terms here which have become basic in the field of automated instruction, such as "program" and "programming." In addition, the teaching machine is defined functionally in terms of (1) presenting a unit of information, (2) providing the student with a situation where overt responding on his part is required, and (3) providing, presumably, reinforcement for appropriate behavior on the part of the student by presenting him with the correct answer to the item. They explicitly exclude language laboratory references, apparently on the basis of the definition of teaching machines in terms of the above three requirements.

The authors are careful to point out that the devices grouped under the general heading of teaching machines are "merely implementations of methods or principles." The essential feature of programmed instruction is the program. In a count which the authors made of published studies from 1948 to 1959, the marked acceleration of activity in this field is represented by publication of over 80 studies in the years 1958 and 1959; but there were only six studies prior to 1948. Breaking these studies down into the general headings of "Theory and Discussion," "Developmental and Descriptive," "Training Experiment," "Programming Only," and "Field Surveys," it is seen that the frequency of different categories of articles follow in the order given, in an almost linearly decreasing manner. One looks forward to the time when reports of programs match the frequency of theoretical discussions concerning teaching machines and programmed instruction in general. Table One of this section lists older teaching machine programs which have been developed for experimental studies. A few of these have subsequently gone to publishers and are commercially available; as have some of the programs in Table Two, which lists those programs in development in early 1960.

Particularly useful is a summary of experimental studies giving not only a brief statement of the results, but also information about the nature of the experiments and the devices employed.

The second section of the bibliography is a summary of devices. Twenty-

eight different machines are listed in this section. The authors point out that this listing of devices is not an exhaustive one and is not limited to actually available machines. While some commercially available devices are also included, the devices listed here were developed primarily for specific research projects. This section will undoubtedly be the most quickly outdated, since unfortunately the development of programs does not seem to keep pace with the proliferation of machines.

The third section is an annotated bibliography of papers published in the area of programmed instruction. This bibliography is the most complete work available today. The material was originally supplied for the Office of Naval Research by the Electronics Personnel Research Group, Department of Psychology, University of Southern California. Both published and unpublished papers are represented in the annotated bibliography, including progress reports which are helpful in giving additional information concerning ongoing projects not available elsewhere. These articles have been published in a multitude of sources, particularly military research reports that are generally inaccessible. This annotated bibliography of over 100 papers covers the span of years from 1926, beginning with Pressey's paper, "A Simple Apparatus Which Gives Tests and Scores—and Teaches," through articles appearing as late as 1960.

The final section provides a listing of firms producing teaching machines and programmed textbooks, with information concerning the nature of their products.

In a postscript, the authors provide additional information which undoubtedly brought their report up to date as of the moment of publication. The report, which is a supplement to the *Audio-Visual Communication Review*, Vol. 8, No. 2, is the kind of careful production which one would hope to see much more of in this area. The Department of Audio-Visual Instruction and Drs. Fry, Bryan, and Rigney are to be commended for having pioneered so capably in doing this job.

EDWARD J. GREEN  
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*Fights, Games and Debates*. Anatol Rapoport. University of Michigan Press, Ann Arbor, 1960. xvi + 400 pp. \$6.95.

This book purports to be about conflict. According to Professor Rapoport, conflicts can be classified under the three headings embodied in the title of his essay. Fights are conflicts in which "it is irrelevant or altogether impossible to express the 'position' of the opponents in words" (p. viii). In games, the opponents attempt to achieve conflicting objectives subject to constraints which they agree to impose upon the procedures for attaining their goals. Opponents in a debate are concerned to persuade one another or their audience of their views. Each of the three sections of the book is concerned (at least officially) with one of these three types of conflict.

The first section is allegedly devoted to fights. Actually it contains an interesting account of certain mathematical models of mass behavior—in particular, L. F. Richardson's models of the behavior of nations engaged in an arms race—and of the conditions under which mass violence occurs. Some of these models are relevant to fights in Rapoport's sense. However, Rapo-

port's chief concern in this section is not with fights as such but with making a critique of programs endeavoring to provide mathematically statable laws governing mass social behavior. Such programs for a "social physics" presuppose, according to Rapoport, a kind of determinism. However, this determinism need not be and, indeed, is not construed to be a classical form of determinism. The "laws" that are constructed are statistical in form. Rapoport provides a useful popular account of the sense in which statistical regularities can provide us with an understanding of social phenomena and can increase our control over our environment.

A bridge between the first section and the second section dealing with games is provided in Rapoport's concluding remarks concerning social physics. Statistical knowledge concerning the behavior of social groups does not provide us with information concerning the policies adopted by the members of these groups in realizing their goals nor with the rules in terms of which these policies are to be evaluated. A social physicist studying a pair of chess players who play a large number of games may be able to estimate the long run frequency with which a given player will win, the average number of moves required to terminate a game between these two players, etc., without knowing either the rules or the strategies of chess. Rapoport feels that the approach of social physics must be supplemented by an understanding of the strategic aspects of the behavior of individuals who constitute social groups. However, he also contends that it should be possible to provide such understanding by an appeal to mathematically formalizable models—albeit mathematical models different from those utilized in social physics. A consideration of game theory, Rapoport maintains, will explain his meaning.

Rapoport's discussion of game theory reinforces the respect already engendered by the first section of his book for his skill in communicating the gist of mathematical theories on a popular level. His exposition includes a treatment of utility, Bayes strategies, zero sum and non zero sum games and two-person and n-person games. He concludes the second section with a discussion of the inadequacies of game theory as a formulation of prescriptions for rational individuals engaged in conflict. He observes that game theory is not powerful enough to define optimal strategies if the game being played is not two-person zero sum. Additional assumptions not rationalizable within the framework of game theory itself must frequently be added. Thus, occasionally it might be appropriate in a game for two or more players to cooperate for mutual gain or for one player to threaten another. The propriety of cooperation or of threats is in part a function of the extent to which one player can trust his partners or the extent to which his threats will be believed. "What is essentially missing from game theory proper is a rigorous analysis of situations where communicative acts are moves of the game, and where effective communication may change the game. For example, the choice of believing or not believing can be a move in the game, and the game may change according to which choice is made" (pp. 232-233).

This conclusion provides Rapoport with a pretext for a consideration of persuasion in the third and final section of his book. He begins with an apology for the fact that in the third section he will not be able to state results in mathematical form but will have to rely on intuition (which he persistently confuses with investigations that do not issue in mathematically stateable conclusions). He then proceeds to examine three different orienta-

tions to psychotherapy—therapy through reconditioning, through explaining away disturbing attitudes or problems, and through removing threats. He suggests that each of these outlooks corresponds to a technique of persuasion and that only the latter is appropriate to "debate among equals" (p. 274). The technique in debate recommended by the third approach is: (a) convey to one's opponent that he has been heard and understood; (b) indicate the sense or senses in which the opponent's view is true as well as those senses in which it is false (Rapoport feels it to be noteworthy that there is always some way of interpreting an assertion to make it true. Unfortunately he provides no non-trivial way of interpreting *this* assertion as true); (c) emphasize the respects in which you are like your opponent in order to remove yourself as a threat. He will then be inclined to perform operations (a) and (b) for your view and hence give it serious consideration.

Many readers will feel cheated when they reach this point. Rapoport frequently intimates that the section on debate will deal with matters of vital importance to an understanding of conflict. To be told that some fairly familiar rhetorical devices of the sort that might be found in a book by Dale Carnegie can play a major role in resolving conflicts hardly satisfies one's expectations. Even Rapoport's entertaining hypothetical debate between an advocate of collectivism and an advocate of individualism cannot infuse significance into such a proposal.

To this disappointment will be added a certain measure of confusion concerning Rapoport's conception of communication. Rapoport suggests that game theory fails to handle problems of communication. His illustrations indicate that by a problem of communication he means the problem of persuading another of one's sincerity. However, in the section on debate, the problem of communication is construed as the problem of explaining the meaning of what is asserted and persuading another of its truth. Nowhere does Rapoport relate the two types of problem although the tenor of his remarks at least suggests that the section on debate will indicate a way to fill in the lacunae in the game theory approach to conflict.

Had Rapoport contented himself with the role of expositor of some recent attempts to employ mathematical models in the behavioral sciences—a role he plays with great distinction and success in the first two parts of his essay—his book could be recommended with considerable enthusiasm. As it stands however, the book's pretensions overreach its achievements.

Extensive notes, a large bibliography and an index are included at the end of the volume.

ISAAC LEVI  
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*The Nongraded Elementary School*, John I. Goodlad and Robert H. Anderson. Harcourt, Brace and Company, New York, 1959. 248 pages. \$ 3.95.

It is unusual for a book published in 1959 to grow in significance and interest so that a review of it in 1961 is still timely and necessary. Such a book is Goodlad and Anderson's *The Nongraded Elementary School*. The growing concern about more effective ways to organize the elementary school for instructional purposes stimulated by the many projects of the Ford Foundation makes this provocative and thoughtful book required reading for all teachers, administrators, and individuals concerned with this problem.

The thesis of the book presented in the first chapter is that the basic assumption of the grade organization, namely that the work of a grade, a year of progress, and a chronological year in a child's life are roughly comparable is not consistent with what we know about the variation that exists among children in each grade with respect to mental age, achievement in each subject area, and physical and social development. Furthermore, it is pointed out that these data show that this variability gets greater rather than less as the child moves through the elementary school and high school. The evidence suggests also that attempts to get greater homogeneity by grouping with respect to one achievement or growth factor will frequently extend the heterogeneity of the groups with respect to other equally important factors.

According to Goodlad and Anderson, then, the task of the school is to make sure that its organization and facilities enhance rather than negate the continuous and unique development of every child within its care.

A major portion of the book discusses the dilemmas of the grade organization which are the concern of every teacher: "To Promote or Not to Promote" (Chapter 2), "Reporting Pupil Progress in the Nongraded School" (Chapter 6), "Toward Realistic Standards and Sound Mental Health" (Chapter 7), and "Modern Theories of Curriculum and the Nongraded School of Today and Tomorrow" (Chapter 5). The rest of the book is devoted to the development and illustration of the nongraded school—"Today's Nongraded School Emerges" (Chapter 3), "The Nongraded School in Operation" (Chapter 4), "The Establishment of the Nongraded School" (Chapter 8), and "Toward the Elementary School of Tomorrow" (Chapter 9).

The authors of this book write with feeling and conviction; happily, they also write from a base of considerable scholarship and experience with the problem being discussed. This unusual circumstance creates a book which is very readable; a book in which much of the research underlying many of the chapters has been done by the authors, and a book where the reports of practice grow out of situations in which the authors have been involved either as participants or as consultants. This kind of background gives much of the writing a flavor of validity and an "I have been there" quality.

In spite of the use of *The Nongraded Elementary School* in the title and the constant reference to nongraded in the discussion of each chapter, careful reading will reveal that the authors really are using this term as an idea and not as a patented form of school organization. This idea has to do with the devising of flexible forms of organization, all attempting to contribute to the continuous educational progress of each child. The idea is not necessarily restricted to ungraded primary programs where classroom groups based on reading level have been substituted for the traditional primary grade groups. In fact, the authors say in a number of places that their primary interest in the nongraded school is that it forces teachers, administration, and parents to really take a hard look at the curriculum of the school, the children who attend it, and the way in which children, teachers, and resources can be more effectively brought together. One is convinced that they would be happy to discover even better forms of organization than those now discussed.

The reviewer, however, in spite of his enthusiasm for the book, would like to consider a number of questions with the authors and readers of this review.

1. Do the "facts" concerning the inter- and intra-variability of children

and the acceleration of these differences under conditions of time and good teaching raise serious questions concerning the validity of the grade organization and not about the many forms of nongraded programs now being developed about the country?

Do the authors believe that the almost complete dependence on "reading level" as a basis for grouping in the ungraded schools provides a better basis for learning than does a similar grouping on the basis of chronological age; especially in situations where the staffs of each organization would work equally hard on the curriculum problems, evaluation, flexible sub-grouping, and continuity?

It is the feeling of the reviewer that even though other bases for grouping are considered, and there are several statements of caution about grouping solely on reading achievement by the authors, they do not satisfy a careful reader that the hard problem of how to classify and group children in a throughgoing program of continuous educational development for every child is completely resolved. Neither are the authors as rigorous in asking some of the same tough questions about proposed alternative procedures for school organization. It is true that they do say in the final chapter of the book that no method of organization or grouping alone will be completely satisfactory. The reviewer would be happier, however, if each previous chapter on the ungraded school would have shown the strengths and weaknesses of the various organization plans.

2. Do nongraded programs of organization push the elementary school toward traditional forms of organization characteristic of the high school and college?

As subject areas are considered and search is made for continuities which which would provide themes for organizing a program of continuous development, wouldn't this force school organization toward multiple subject track patterns of continuous achievement, especially at the upper levels of the elementary school? Would this procedure cause us to lose some of the values of the present patterns of organization? We have long known that the potential values of the teacher-per-group program of organization are the weaknesses of the departmental plan and vice-versa. Any adequate plan of instructional organization needs to provide for both horizontal and vertical continuities in educational development. These two values are hard to combine in any one pattern of educational organization.

3. Are the authors convinced of their implicit assumption that if one makes changes in instructional organization this automatically forces a staff to reconsider their curricular thinking and teaching procedures?

Would it be possible to reverse the order and start with revisions in curriculum planning and then to consider appropriate organizational and instructional plans? Everyone admits that in the last analysis, the success of any nongraded school is dependent on the degree to which the necessary curriculum thinking and planning is done. Would it be possible for a school system to change to an ungraded primary program of organization, for example, and still not do the kind of curriculum planning and coordination which would make the organizational procedure a success? I am sure that both the authors and the reviewer can provide many illustrations of school systems where this is true. These situations provide the illustrations, unfortunately, of schools going back to the old grade organization after a period of trying out some ungraded plan.

4. Has our modern curriculum thinking which the authors admit forms

the basic rationale necessary for the success of any plan of school organization moved to the point where it can support such plans adequately?

Is it likely that our thinking in this area has not moved far enough or is not sufficiently the common coin of the realm to buttress programs of reorganization? Is there need now for major attacks on the problem of curriculum planning and design which would provide the basis for the flexible and imaginative planning about school organization for which the authors plead? It is the position of the reviewer that until this kind of understanding is gained by the staff of any school, no plan of reorganization is going to achieve the success or fully exploit the opportunities inherent in many of the organizational plans now proposed. The improvement in the area of school organization will come from curriculum development and not vice versa.

5. Could more attention have been paid to team teaching as a vehicle within more general forms of organization to achieve some of the purposes of this book?

It is likely that at the time this book was written the authors were not ready to bring the more recent data on team teaching to their writing. It is safe to predict that the next revision of this book will pay more attention to this means for achieving the educational end desired.

6. Are the authors happy about the many claims and counterclaims made regarding the success or lack of success of different plans of instructional organization?

Probably not. Most everyone realizes how little real evidence we have on the relative values of alternative plans of school organization. Of course, this kind of evidence is the most difficult to get in education. It is also true that organizational plans are "conditions" variables and do not provide independent-dependent variable relationships which are the important dynamics of the educational process. It is obvious to anyone that what happens after the organizational arrangements have been made is the crucial question.

The reviewer would have preferred, therefore, to have some of the enthusiastic reports of the present programs evaluated more critically by the authors. The writer, for example, has been consultant to the Milwaukee Public Schools for the past eight years, and while he is enthusiastic about the potential inherent in the ungraded primary program of this school system, the available facts do not permit sweeping conclusions about its success.

There is no question in the reviewer's mind that this book will grow in importance and that it will stimulate additional thinking and work in this problem area. I believe that the authors would be the first to admit that the proposals in this book do not constitute the final answer to the problem of elementary school organization in any sense. They have posed, however, some of the important questions, presented promising developments, and have suggested the work which lies ahead.

As a reviewer, it is refreshing to read a book of this kind focused on an important problem area of education, authored by individuals who have done the work which brings authority to their writing, and phrased in a fashion which is both vigorous and challenging to the future. May we have more of this kind of book in education.

VIRGIL E. HERRICK  
University of Wisconsin

*Religious Education in German Schools: An Historical Approach*, Ernst Christian Helmreich. Harvard University Press, Cambridge, 1959. 365 pp. \$7.50.

The author's remark, "it would be practically impossible to make any statement in regard to educational matters which would hold for all Germany" (p. 54), is by no means an exaggeration and gives an idea of the enormous difficulties arising in the attempt to give an adequate picture of religious education in Germany, if the investigation is not limited to certain regions or epochs. A comprehensive history of religious education in German schools—a task never tackled before—must keep clear of the danger either of generalizing too much for the sake of perspicuity, or of giving a heap of isolated informations which, correct as they might be, would produce confusion instead of understanding in the reader's mind.

Professor Helmreich has avoided both Scylla and Charybdis. Although his book is brimful of details, he never allows them to get the better of the clear line in the description of conditions or trends. The vast material he gathered in years of intense studies—consulting numerous books and archives, collecting scattered articles from periodical and even daily papers, interviewing church and school officials as well as pupils, and visiting religion classes—has been arranged so as to afford a clear view of the whole.

The book is divided into five parts, the incisions being made at crucial points of German history: 1871, 1918, 1933, and 1945. The subdivision has been carried far enough to enable a hurried reader to find some special aspect of the theme without delay. Within this arrangement not only purely educational questions such as school organisation, supervision of schools, training and appointment of teachers, influence of the churches, school laws, religious curriculum, grades, examinations, textbooks, methods, school services, etc., are discussed; but also the cultural, social, economic, and political background is given. There is hardly any major historical event from the Carolingian Renaissance to the Berlin blockade the effect of which on religious education is not shown. At the end of each chapter, as well as each paragraph, Helmreich recapitulates its main ideas; and the last chapter consists of an excellent survey of the whole field he has plowed.

Stress is laid (1) on recent history—the development from the Weimar republic to the present time covers two thirds of the book; (2) on Protestant religious education—it is and has been much more complicated and subject to change than its Catholic counterpart; (3) on the legal status of religious instruction—a great number of school laws, ordinances, and articles of various German constitutions are quoted. This was especially difficult in the chapters concerning the Nazi and Communist regimes, since many important ordinances were not published. But throughout the book things were complicated by the existence of a number of German states with different regulations that had to be treated. Questions of the content and method of religious instruction are not neglected, but the reader is expected to have some pedagogic as well as theological knowledge.

The basic idea of the book is to show the various stages of the struggle between church and state over their shares in education.

Religious education as it exists today in German schools is rooted deeply in the past. Like education in general, it started out as a province of the church, but as the state gradually took over the

burden of educating its citizenry, it also came to have considerable control over religious education. (p. 293)

The much debated issue of confessional, interdenominational, or secular schools can be fully understood only within the light of a development stretching over centuries.

As this development is going on, it is no fault of Helmreich's that within the two or three years since he completed his book some aspects have changed. For example his statement that in Eastern Germany only 1 to 6% of the children preferred the state-sponsored youth dedication to the traditional confirmation (p. 269) has been overtaken by recent reports speaking of well over 50%.

Perhaps the highest merit of the book lies in the objectivity and exactness with which the rich material is presented. Even in describing the malicious machinations of the totalitarian regimes the author refrains from polemics and does not hesitate to note details contrary to the wonted picture. His guiding principle is to write down not what fits into a pattern but what is true. The reader is hardly able to find out which of the educational and religious trends described in the book enjoy the sympathy of its author. He seems to advocate interdenominational schools and a moderately progressive program in education, and certainly he is not a Catholic. But he carefully avoids taking the side of one of the parties involved. To this is added an extraordinary knowledge of the German school system and school life. The complicated differentiation between, e.g., the many types of higher schools, or between *Religionsunterricht* and *Evangelische Unterweisung*, is accomplished by means of plain and distinct definitions. Some fine remarks on the problem of discipline (p. 252) show much insight into the practical side of religious instruction.

In a few instances the reviewer would have wanted to have matters accentuated in a slightly different way. To him it seems as though the Christian character of the interdenominational school has been taken for granted too readily, as if it differed from the confessional school only by having different religion classes. The sentence, "a *Simultanschule* located in a territory inhabited by only one confession is to all intents and purposes a confessional school" (p. 134), does not sufficiently consider the fact that some subjects, such as history or German, can be permeated with a confessional spirit at a confessional school only. In addition, at a *Simultanschule* the problem of teachers without religious affiliation—or, at least, conviction—arises. The attitude of the Catholic church in this question was and is not determined by historical and prestige moments only, but also by concern about matters of faith. Equally, it seems a bit of a simplification to label the Christian Democratic Union "Catholic-dominated" (p. 230), and the Liberals would certainly protest against the classification "Social Democratic and other liberal parties" (p. 68, *et al.*), since they have only anti-clericalism in common with the Socialists. It would have been interesting to learn whether the rising of the East Germans on June 17, 1953, had any consequences concerning the relation between church and state, but the date is not even mentioned, although Mr. Helmreich reports upon negotiations between church and state officials in early June, 1953. But all these points are not so very important.

Highest praise is due to the carefulness with which the proofs were cor-

rected. Hardly any misprints are to be found, and if so, they are in the German texts of the notes and do not impede understanding. Some insignificant errata may be corrected: Nazi leader Rosenberg certainly could not write an article as late as 1953 (p. 334); the number of people without religious affiliation did not decrease, but increased in Eastern Germany under Communist rule (Table p. 257: 1946 not 1.0% but 0.1%); the currency reform in Western Germany took place on June 20, not July 18, 1948 (p. 226).

The book is written in a clear and pertinent style, which now and then assumes a humorous tone: for example, in describing the manifold duties of the teacher as a sacristan (p. 16).

There is an excellent bibliography, which gives approximately 300 titles covering the whole field of German education and many adjacent themes. The index has been carefully compiled and gives detailed hints in the more important items. All persons mentioned in the study are entered with their dates. The notes cover more than 30 pages and provide not only exact evidence concerning the sources of information, but also additional material. A number of very instructive tables is interspersed.

The volume shows an immense amount of learnedness, energy, and perspicacity. Everyone interested in the questions it deals with will find it most helpful. It should be put into the libraries of all institutions that are concerned with educational matters. A standard work on religious education in German schools has been lacking. Here it is.

JOACHIM VOIGT  
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Celle, Germany

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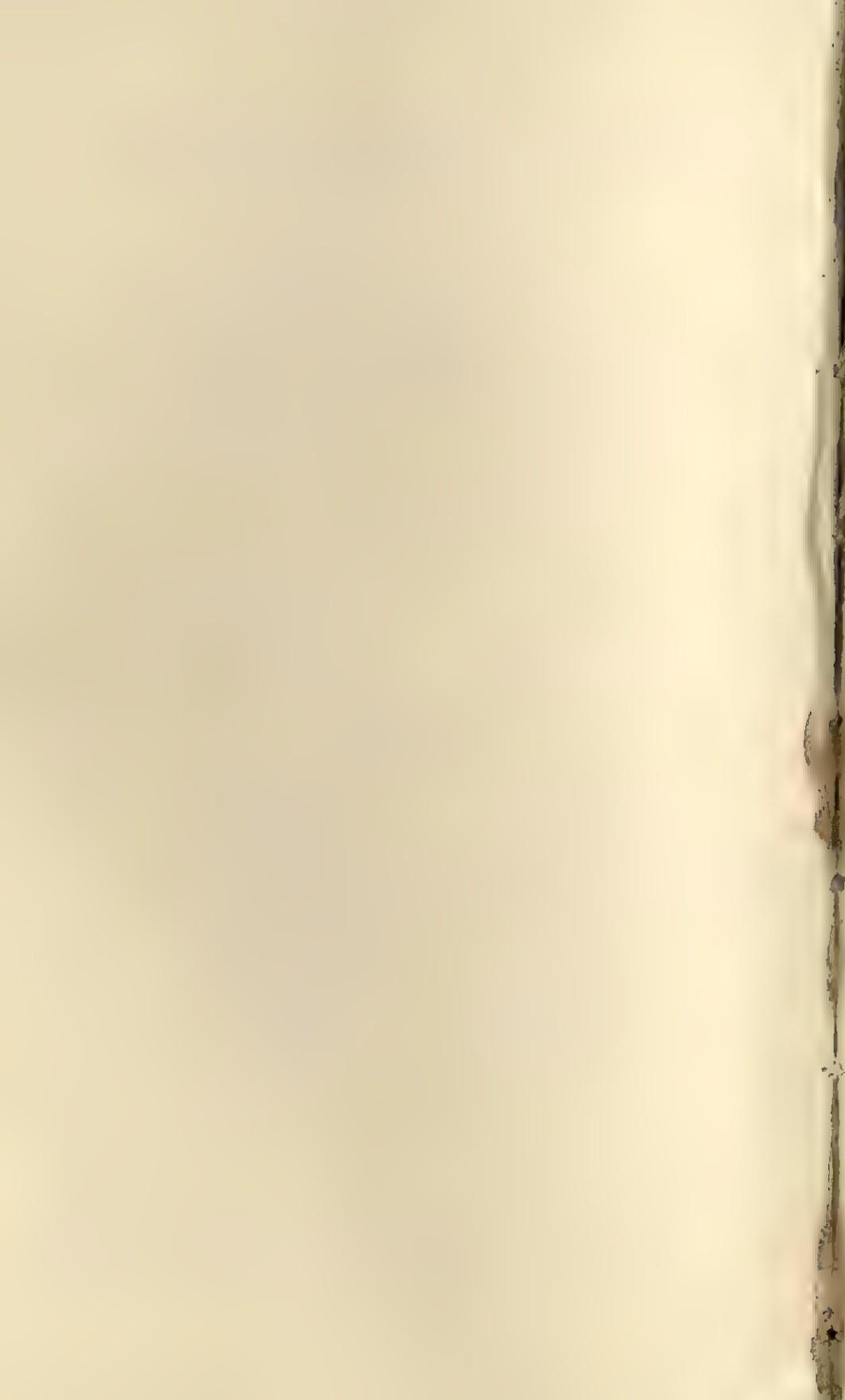
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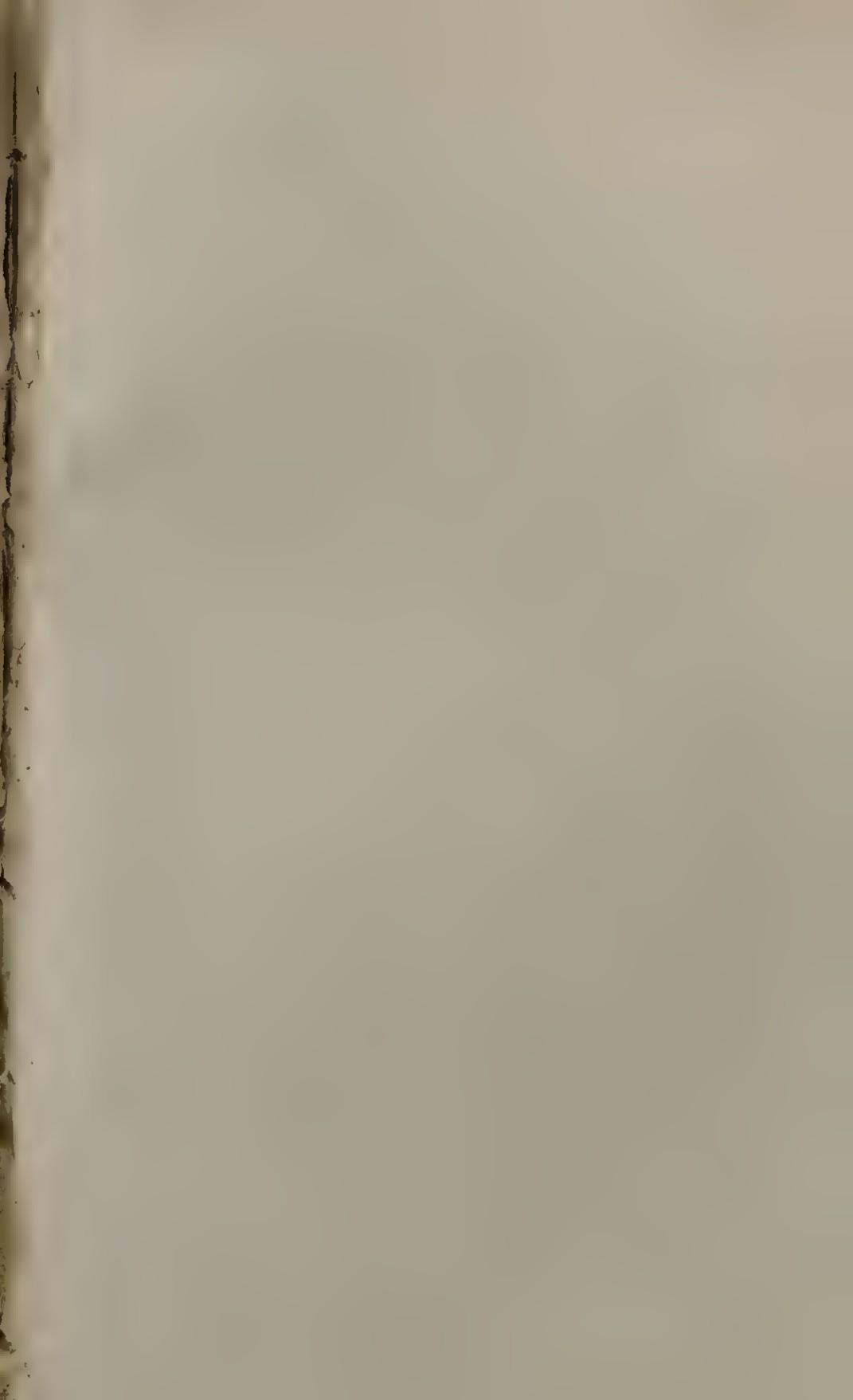
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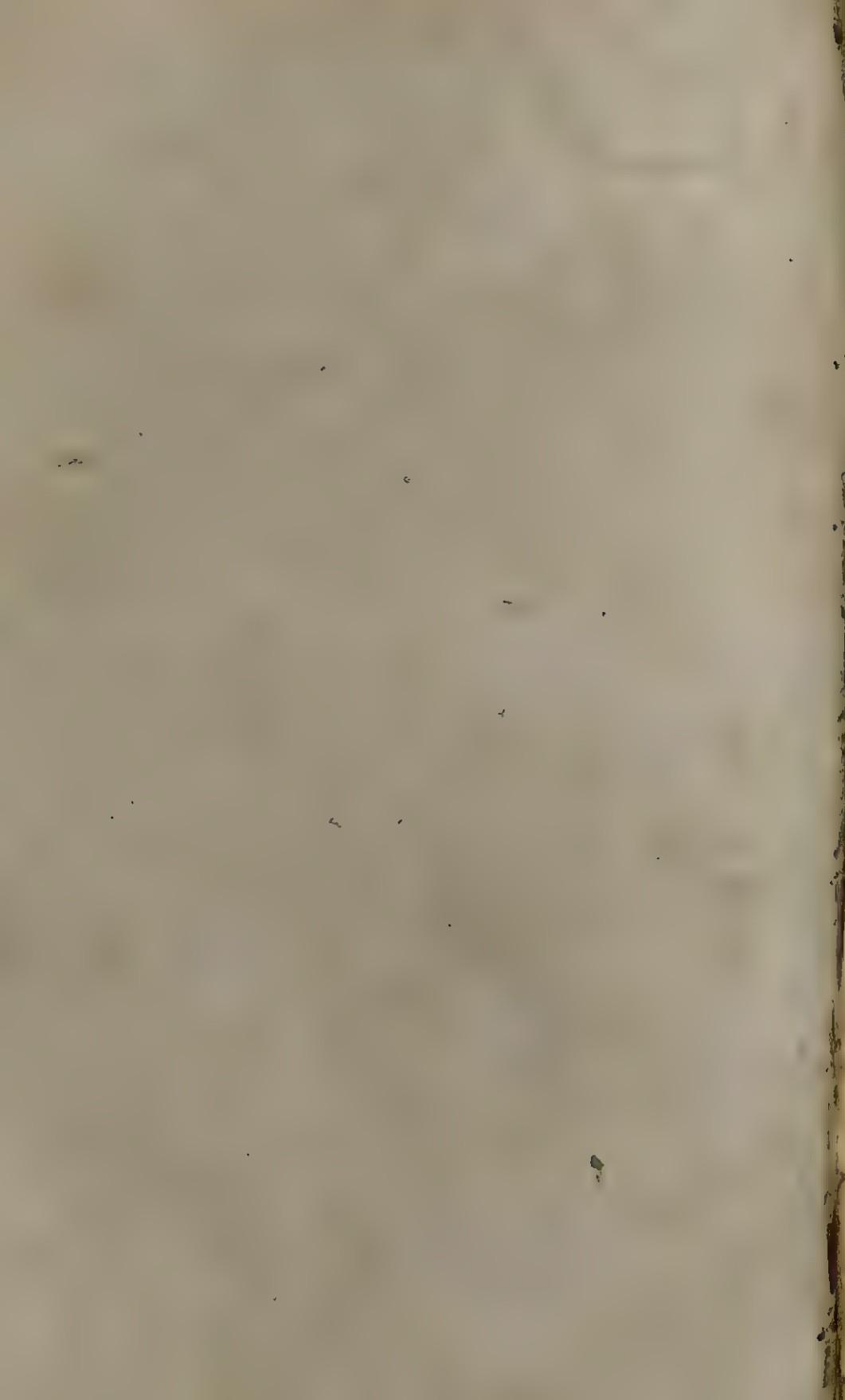
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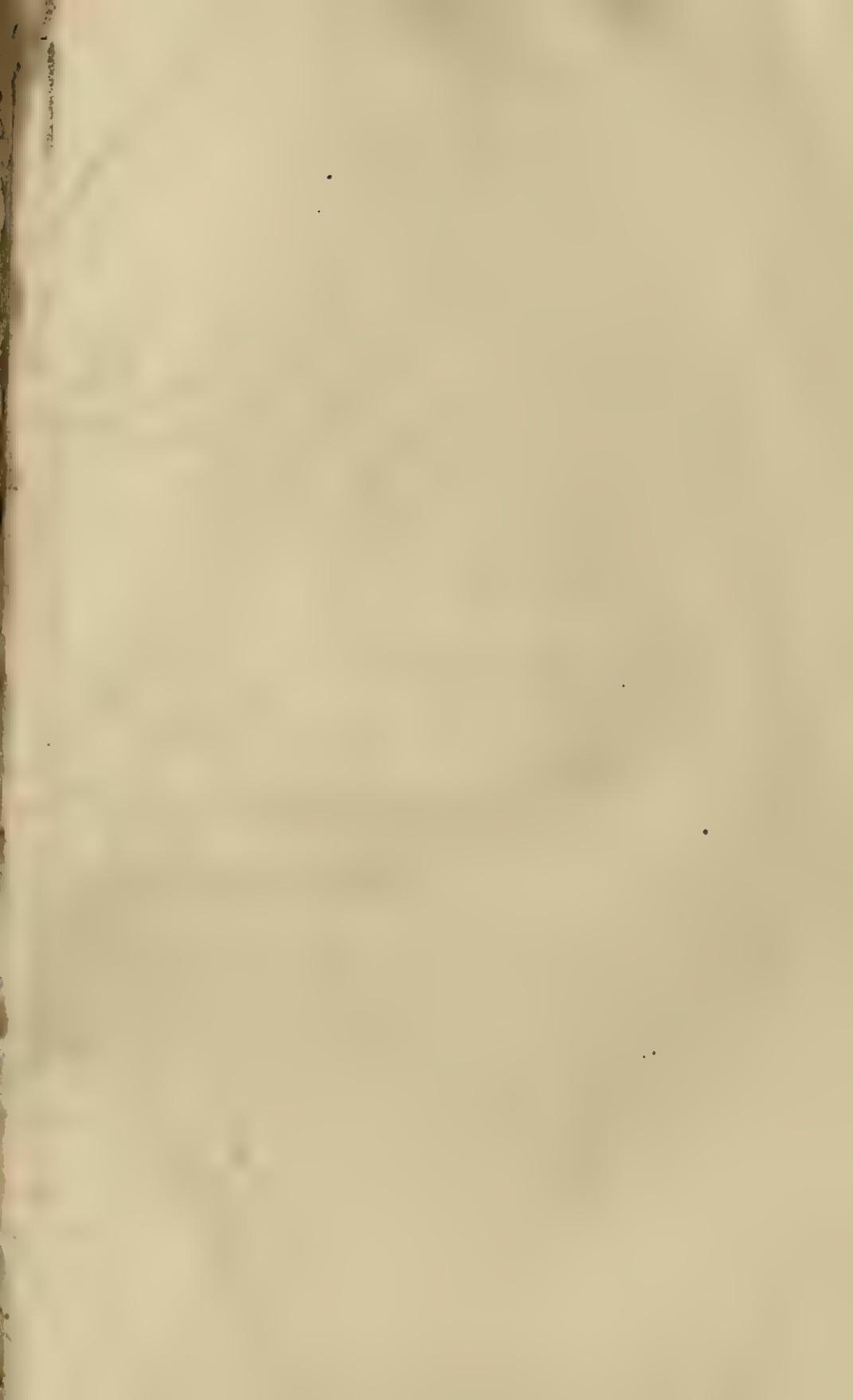
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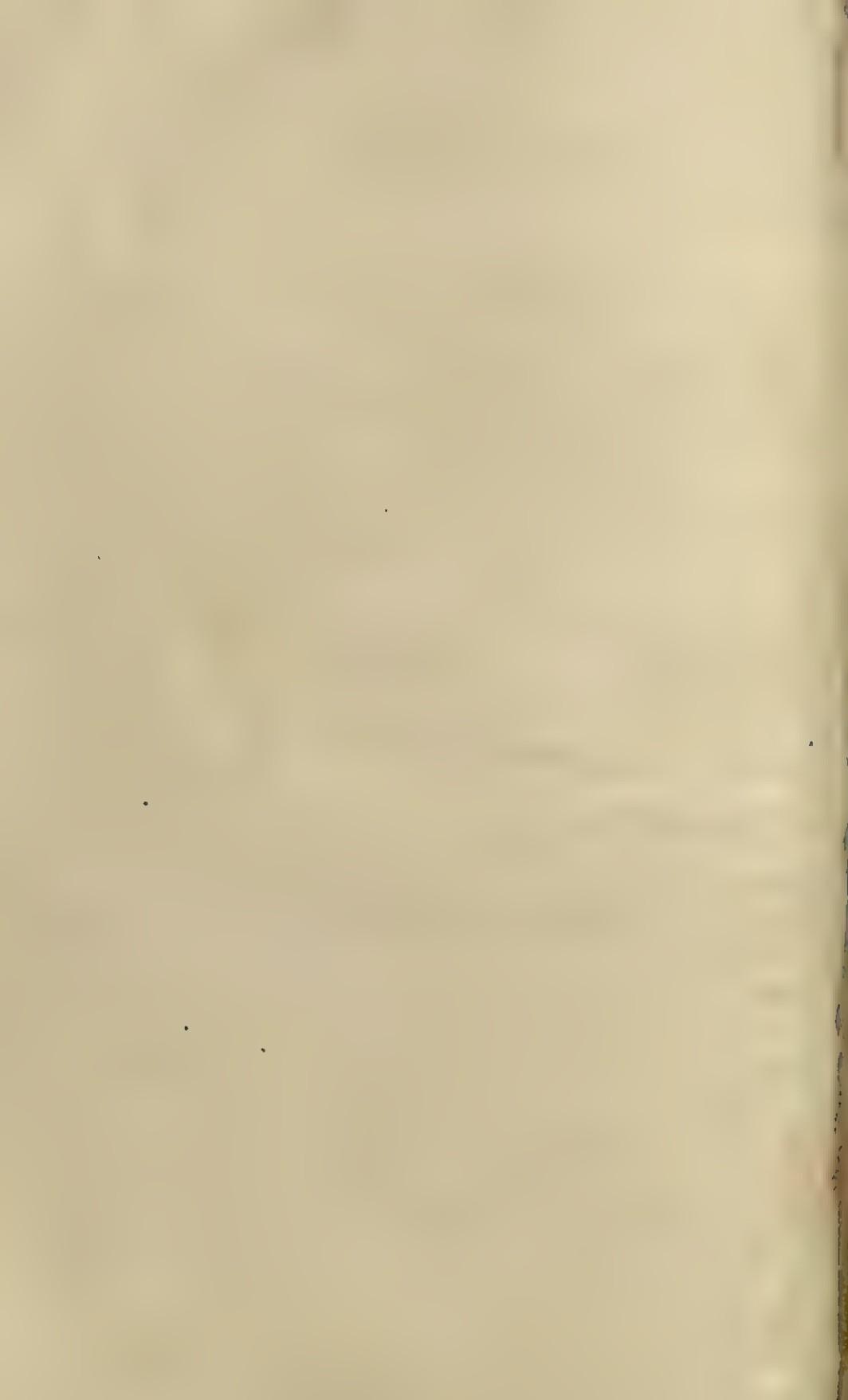
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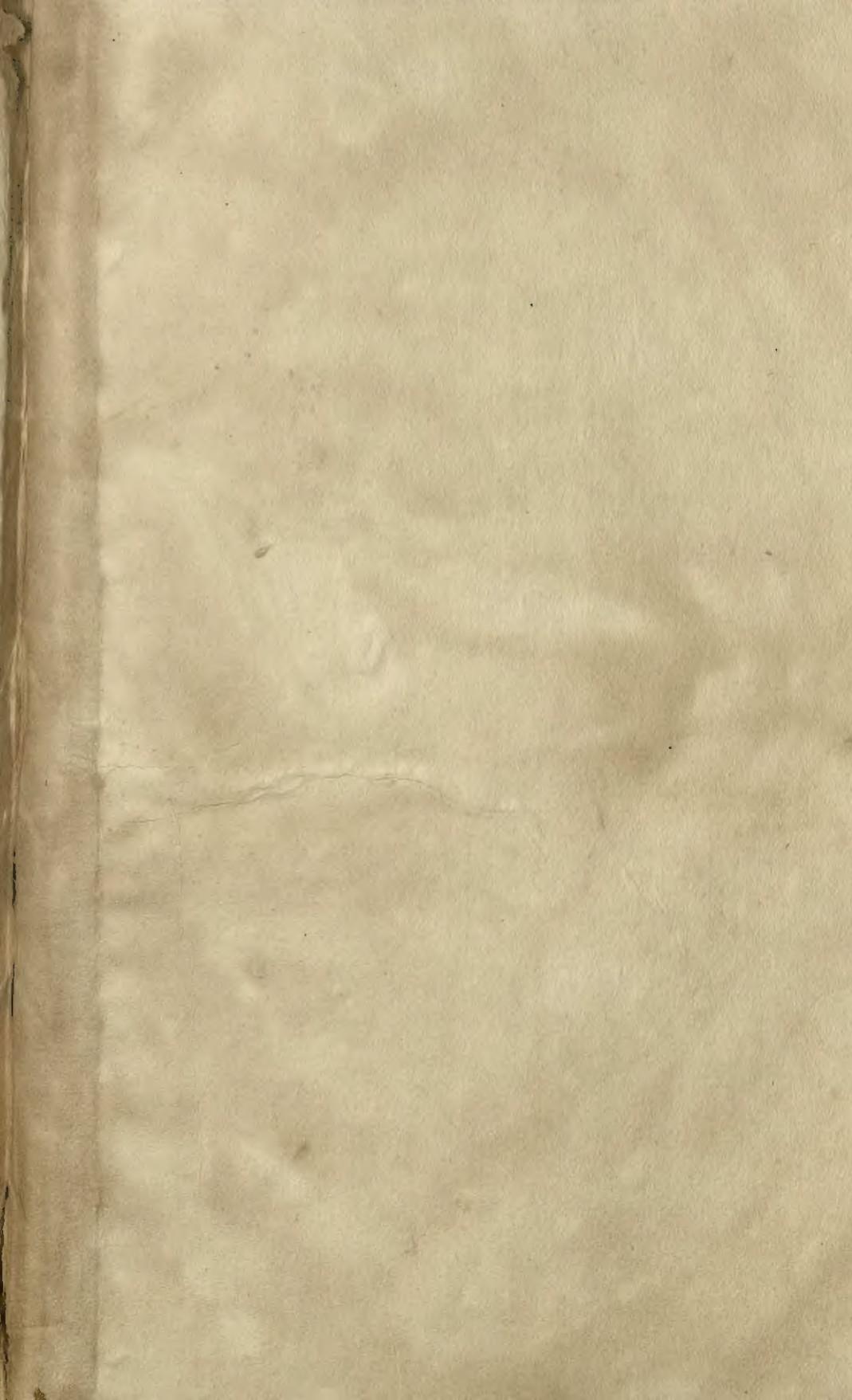
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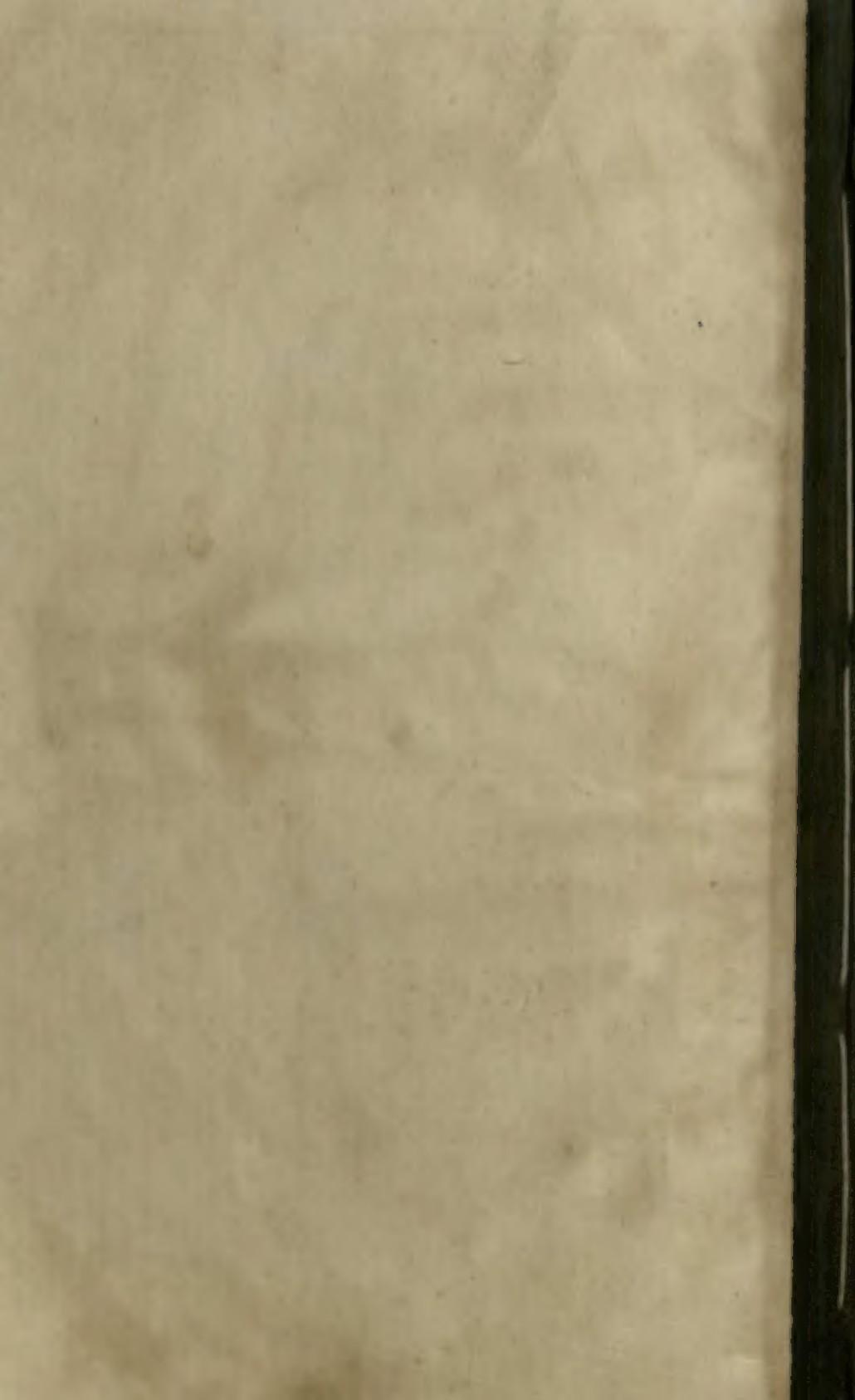












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